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CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ORIGINAL ARTICLES

Western Medicine in the Modern World — Sir DAVID LINDSAY KEIR, LL.D. ... 823
Cerebral Vascular Diseases — Prof. IRVING S. WRIGHT, M.D. ELLEN MCDEVITT, M.D. ... 825
Cerebral Vascular Disorders — Sir RUSSELL BRAIN, F.R.C.P. ... 831
Suppurative Mastoid Surgery — F. BOYES KORKIS, F.R.C.S. ... 833
Artificial Feeding and Energy Requirements of Young Infants — F. E. HYTTEN, M.B. I. A. G. MACQUEEN, M.D. ... 836
Pathogenic Bacteria in Chronic Bronchitis — J. R. MAY, M.D. ... 839
Red Half-moons in Cardiac Failure — RICHARD TERRY, M.R.C.P. ... 842
Local Tetanus — A. HENRY MILLARD, F.R.C.S. 844
Pain under the Head of the Metatarsal Bone of the Big Toe — A. J. HELFET, F.R.C.S. ... 846
Arteriovenous Aneurysm in the Spleen — R. M. EVANS, M.R.C.P. ... 846

PRELIMINARY COMMUNICATION

Total Adrenalectomy in Hepatic Cirrhosis with Ascites — F. G. W. MARSON, M.R.C.P. ... 847

MEDICAL SOCIETIES

Association of Clinical Pathologists ... 848

NEW INVENTIONS

A Bladder-perforator — A. R. ANSCOMBE, F.R.C.S. ... 849
Ligature-carrying Dissection Scissors — A. M. N. GARDNER, F.R.C.S. ... 849
Regulating Clip for Intravenous Transfusion in Infants — R. V. WALLEY, M.B. ... 849

REVIEWS

Notices of Books ... 850

LEADING ARTICLES

POLIOMYELITIS VACCINES ... 851
CANCER OF THE RECTUM ... 851
FLUTTER AND FIBRILLATION ... 852

ANNOTATIONS

The Physician as Investigator ... 853
Air Hygiene in the Schoolroom ... 854
Origin of Idiopathic Epilepsy ... 855
Virulence-enhancing Effect of Antibiotics ... 855
Surgical Waiting-lists ... 855
Erythromycin in Diphtheria ... 856
Developments in the Training of Prisoners ... 856

PUBLIC HEALTH

Public Opinion on Cancer — RALSTON PATERSON, F.R.C.S. JEAN AITKEN-SWAN, A.M.I.A. 857
Second Quarter in England and Wales ... 861
Rehousing of Slum Populations ... 861

SPECIAL ARTICLES

Physical Disease in a Mental Observation Unit — J. F. STOKES, F.R.C.P. J. D. N. NABARRO, M.R.C.P. Prof. M. L. ROSENHEIM, F.R.C.P. E. W. DUNKLEY, M.B. ... 862
Minister's Review of General Practice ... 863
The Support of Medical Research 864
Harold Hill Health Centre ... 866

MEDICAL CONGRESSES

Clinical Chemistry ... 867

THE WIDDICOMBE FILE

XVIII. Quo Vadis? ... 867

LETTERS TO THE EDITOR

Food Taboos (Dr. Anne Burgess) 869
Hazards of Surgical Induction of Labour (Dr. Gwilym Evans; Dr. A. W. Banks) ... 870
Œdema and Bell's Palsy (Mr. M. Spencer Harrison, F.R.C.S.E.) 870
Towards Cleaner Air (Dr. Charles Dickson) ... 870
Aortic Embolectomy (Mr. E. E. T. Taylor, F.R.C.S.) ... 871
Tuberculous Meningitis (Dr. E. H. R. Smithard) ... 871
Penetration of Hair into Breast (Dr. W. S. Killpack) ... 871
Ætiology of Mongolism (Dr. D. B. Jelliffe) ... 871
Liability for Acts of Deputy (Dr. Alistair French) ... 871
Hysteroscopy in Early Pregnancy (Dr. Björn Westin) ... 872
Basic Anatomy (Prof. G. A. G. Mitchell, CH.M., Dr. E. P. Patterson) ... 872
Hazards of Blood-transfusion (Sir Adolphe Abrahams, F.R.C.P.) ... 872
A Hostel for Rheumatic Patients (Dr. Martin Stratford, Dr. D. M. Baker) ... 872
Agammaglobulinæmia (Dr. Bernard Laurance) ... 872
Peripheral Gangrene in Heart-failure (Dr. W. G. A. Swan) ... 873
Treatment of Plantar Warts (Mr. B. Dalton, M.CH.S.) ... 873
Airman's Ptosis (Dr. John Penman) ... 873
Apothecaries at U.C.H. ... 873

IN ENGLAND NOW

A Running Commentary by Peripatetic Correspondents ... 868

OBITUARY

Arthur Wellesley Falconer ... 873

NOTES AND NEWS

The Colombo Plan ... 874
International Meeting of Women Doctors ... 874
Study Tour of Hospitals in France 874
University of London ... 874
University of Leeds ... 874
Royal College of Physicians of London ... 874
Diary of the Week ... 876
Appointments ... 876
Births, Marriages, and Deaths ... 876

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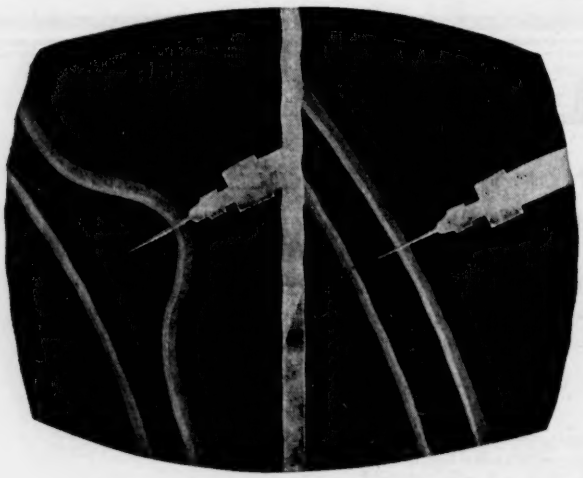

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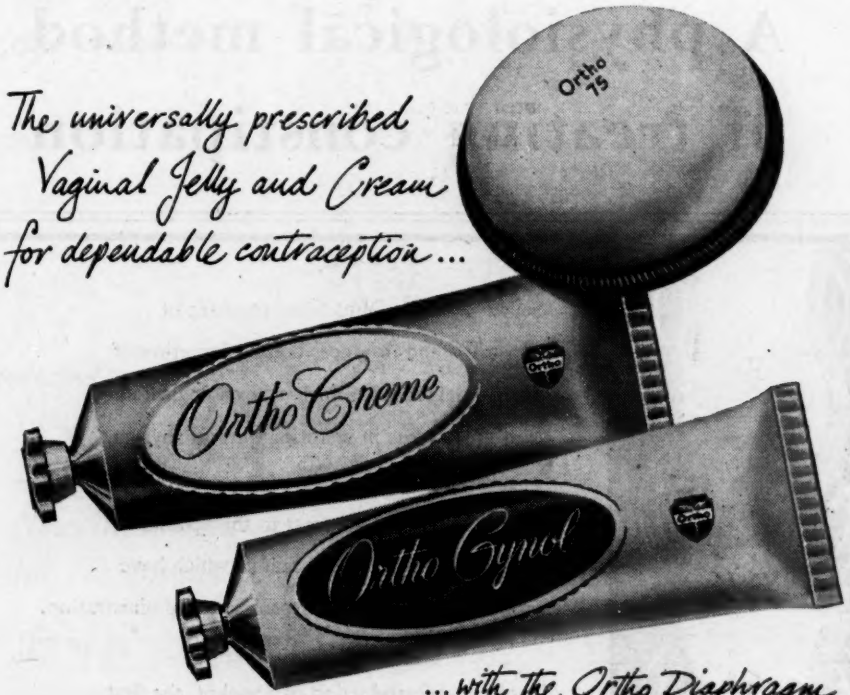

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MONSANTO CHEMICAL COMPANY, *St. Louis 4, Missouri, U.S.A.*

MONSANTO CHEMICALS - PLASTICS

SERVING INDUSTRY . . . WHICH SERVES MANKIND

Save time on urine tests with . . .

CLINITEST and ACETEST

TRADE MARK TRADE MARK

Reagent Tablets
for the detection of Glycosuria

Reagent Tablets
for the detection of Ketonuria

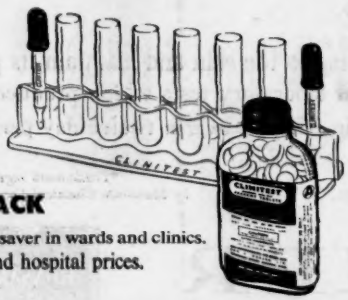
Both tests performed simultaneously in one minute!

Specialists, General Practitioners, Clinics and Hospitals in all parts of the country have used and prescribed 'Clinitest' Reagent Tablets since 1947. Many valuable hours have been saved. Now after intensive research work and clinical trials the makers of 'Clinitest' Reagent Tablets have produced 'Acetest' Reagent Tablets for the detection of Ketonuria. With 'Clinitest' and 'Acetest' Reagent Tablets, reliable routine sugar and acetone tests can be carried out *simultaneously* in one minute!

CLINITEST

No external heating · No measuring of reagents

Approved by the Medical Advisory Committee of the Diabetic Association. The 'Clinitest' set, refills and accessories are all available under the N.H.S. on Form E.C.10. (*Basic Drug Tariff Prices: Set* 6/8 *complete. Refill bottles of 36 tablets* 2/4.)



CLINITEST HOSPITAL PACK

An invaluable time-saver in wards and clinics. Write for details and hospital prices.

The advantages of ACETEST Reagent Tablets

Quick and reliable, a single tablet provides all the reagents to perform a test. Low cost permits this tablet test to be used as a screening procedure or as a routine for diabetic patients. No danger of false positives with normal urine. No caustic reagents.

TO PERFORM A TEST:

1. **Put 1 drop of urine on tablet.**
2. **Take reading at 30 seconds. Compare tablet to colour chart provided.**
3. **Record results as negative, trace, moderate or strongly positive.**

Supplied in bottles of 100 *tablets with colour scale.*

'Acetest' Reagent Tablets (*diagnostic nitroprusside tabs.*) are also available under the N.H.S. on Form E.C.10. Basic Drug Tariff price 3/10 per bottle of 100 tablets (with colour scale).

REFERENCES

(1954) 'Clinical Tests for Ketonuria', *'Lancet', April 17th, pp. 801/804*
(1954) '*Medicine Illustrated*', *May, p. 289*
(1954) '*Practical Clinical Biochemistry*', *Heinemann, p. 74*
(1954) 'Clinical Tests for Ketonuria', *'Lancet', July 10th, p. 95*

AMES COMPANY (LONDON) LTD.

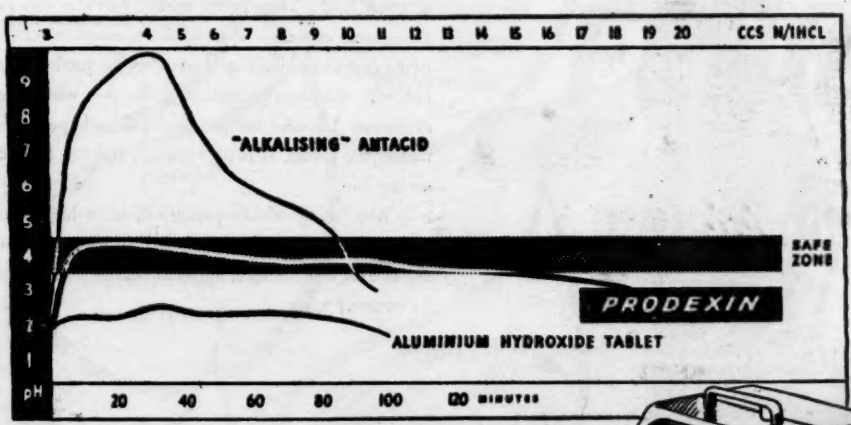
Sole Distributors for the United Kingdom and Eire:

DON S. MOMAND LTD., 58 ALBANY STREET, LONDON, NW1

34

A New development providing CONTROLLED antacid therapy

Prodexin is a new product containing aluminium glycinate, and belongs to the buffer group of antacids. It depends for its action upon the slow release, on hydrolysis, of active aluminium hydroxide gel and glycine (amino acetic acid). Glycine rapidly raises the pH to 2, sparing the aluminium gel for the later stage of raising it into the "safe zone" of pH 3·5 to 4·5. Prodexin maintains an equable gastric environment for long periods without alkalisation.


3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 CCS N/10HCL
9 8 7 6 5 4 3 2 1 pH
"ALKALISING" ANTACID
SAFE ZONE
PRODEXIN
ALUMINIUM HYDROXIDE TABLET
20 40 60 80 100 120 MINUTES

Prodexin provides a convenient, economical and safe treatment for HYPERACIDITY and PEPTIC ULCER.

The tablets, sucked one at a time, maintain the pH of the stomach contents within the "safe zone" for up to two hours. With Prodexin there is no risk of acid rebound or alkalosis. Prodexin tablets are pleasant to suck and they do not form gritty particles in the mouth or give rise to constipation.

PRODEXIN

Each tablet contains:—

Aluminium glycinate.....0·9 gramme.
(*dihydroxy aluminium aminoacetate*)
Light magnesium carbonate.....0·1 gramme.

The basic N.H.S. cost of treatment at the rate of 6 Prodexin tablets daily is 8½d.

Manufactured in the laboratories of

C. L. BENCARD LIMITED

MINERVA ROAD · PARK ROYAL · LONDON N.W.10

BENCARD

NOW AN ACCEPTED TREATMENT . . .

Transvasin

Contains skin-penetrating esters of salicylic, nicotinic, and p-aminobenzoic acids. It brings real relief to deep-seated muscular rheumatism by simple inunction.

TRANSVASIN, a new preparation developed by Hamol S.A., our Swiss associates, and now available for prescription in this country, contains *esters* of salicylic, p-aminobenzoic and nicotinic acids. These esters readily pass the skin barrier in therapeutic quantities and enable an effective concentration of the drugs to be built up where they are needed. Transvasin not only induces vasodilation of the skin with a superficial erythema, but also brings about a deep hyperaemia of the underlying tissues. It is non-irritant, and can be safely used on the skin.

It is now being widely prescribed, with highly successful results. There is evidence, also, that since a very small quantity is sufficient for each application, the cost of treatment is extremely low.

Salicylic acid tetrahydrofurfuryl-ester	14%
Nicotinic acid ethyl-ester	2%
Nicotinic acid n-hexyl-ester	2%
p-Aminobenzoic acid ethyl-ester	2%
Water-miscible cream base ad	100%

Transvasin is available in 1 oz. tubes, basic price 2/6 plus 7½d P.T., and is not advertised to the public.
Samples and literature will be gladly sent on application.

LLOYD-HAMOL LTD., 11 Waterloo Place, London, S.W.1 WHItehall 8654/5/6

Transvasin is the registered trade mark of Lloyd-Hamol Ltd.

The advantages of FENOX nasal drops

Fenox gives two-stage vasoconstriction—prompt and sustained—without side effects

Fenox is non-oily—no interference with ciliary action, no danger of lipoid pneumonia

Fenox remains at the site of action —same viscosity as mucus

Fenox is non-irritant —*pH adjusted* and isotonic with nasal *secretion.*

Fenox is readily absorbed by the mucosa— low surface tension.

Fenox is suitable for both children and adults.

THE IDEAL NASAL DECONGESTANT

FENOX, the only preparation containing phenylephrine hydrochloride *and* naphazoline nitrate, marks an advance in the local treatment of catarrhal conditions of the nasal passages and accessory sinuses. It exhibits all the properties of the ideal nasal decongestant.

FENOX is supplied in ½ fl. oz. dropper bottles. RETAIL PRICE 2/6d., subject to usual discounts.

Literature and "Patients' Directions" pads are available from the Medical Department, Boots Pure Drug Co. Ltd. Nottingham

Boots

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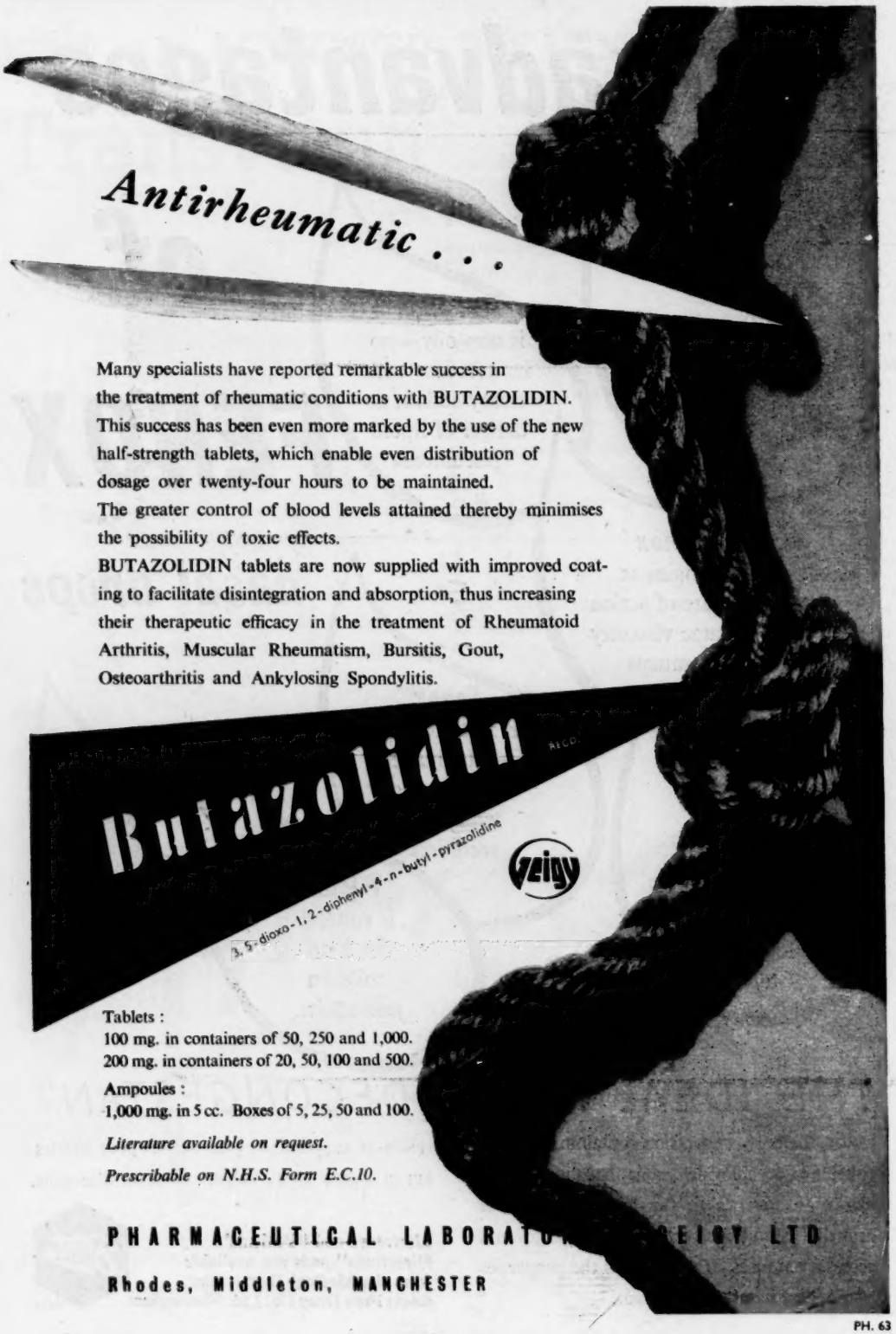


Antirheumatic . . .

Many specialists have reported remarkable success in the treatment of rheumatic conditions with BUTAZOLIDIN. This success has been even more marked by the use of the new half-strength tablets, which enable even distribution of dosage over twenty-four hours to be maintained.
The greater control of blood levels attained thereby minimises the possibility of toxic effects.
BUTAZOLIDIN tablets are now supplied with improved coating to facilitate disintegration and absorption, thus increasing their therapeutic efficacy in the treatment of Rheumatoid Arthritis, Muscular Rheumatism, Bursitis, Gout, Osteoarthritis and Ankylosing Spondylitis.

Butazolidin

3, 5-dioxo-1, 2-diphenyl-4-n-butyl-pyrazolidine

Geigy

Tablets :
100 mg. in containers of 50, 250 and 1,000.
200 mg. in containers of 20, 50, 100 and 500.

Ampoules :
1,000 mg. in 5 cc. Boxes of 5, 25, 50 and 100.

Literature available on request.

Prescribable on N.H.S. Form E.C.10.

PHARMACEUTICAL LABORATO... GEIGY LTD

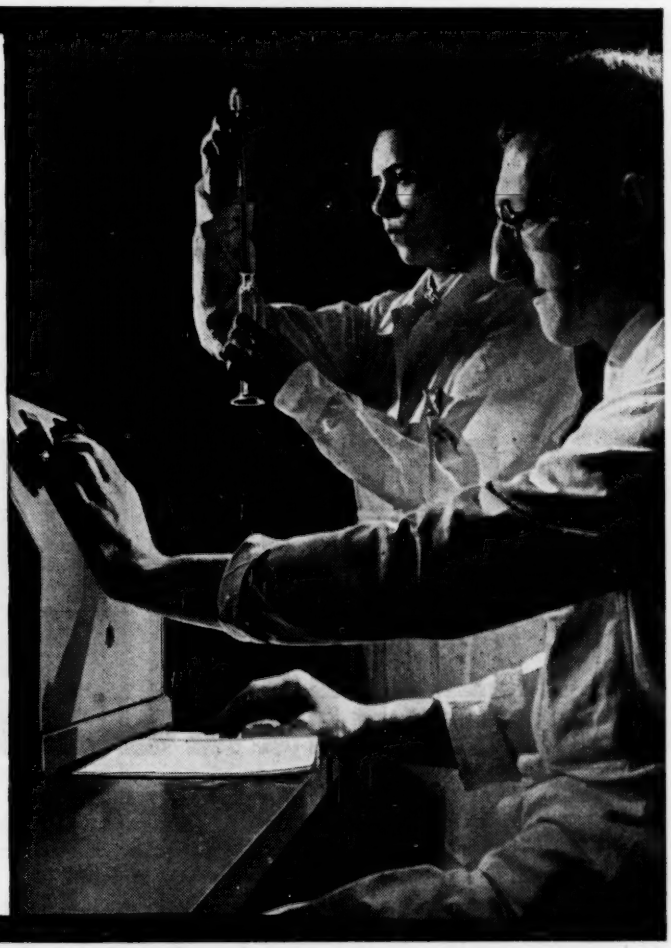
Rhodes, Middleton, MANCHESTER

PH. 63

EVANS
MEDICAL

make a contribution to

The Treatment of Protein Deficiency States



Quartz spectrophotometer

1 Utilisation by the body of protein hydrolysates is deficient in the absence of vitamins which act as co-enzymes in the synthesis of tissue proteins. In the treatment of hypoproteinæmia, therefore, administration of protein hydrolysates should be accompanied by administration of vitamins.

2 In hypoproteinæmia part of any protein hydrolysates administered may be used as fuel for energy purposes and thus diverted from their specific role in rebuilding tissue protein, unless carbohydrates are simultaneously given. Administration of carbohydrates with hydrolysates prevents 'squandering' of the amino acids.

3 Where a protein deficiency state exists there is frequently a co-existing anæmia present. To counteract this hæmatopoietic stimulants are required and are best provided by administration of the anti-anæmia factors of proteolysed liver.

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377

November 1, 1954

AUREOMYCIN*

CHLORTETRACYCLINE, *Lederle*

As from Monday November 1, 1954, the restrictions imposed by the Ministry of Health, limiting the supply of AUREOMYCIN (Chlortetracycline) Hydrochloride Crystalline *Lederle* to hospitals, are completely removed. As from that date doctors are free to prescribe AUREOMYCIN in general practice whenever required for private or National Health Service patients without restrictions. AUREOMYCIN is manufactured in the United Kingdom and is in adequate supply for doctors and hospitals. AUREOMYCIN (Chlortetracycline) is the original broad-spectrum antibiotic which combines potency with safety and economy. More reports have appeared on the excellent clinical results with AUREOMYCIN than any other broad-spectrum antibiotic. There is a form of AUREOMYCIN for every purpose.

Can be prescribed on N.H.S. Form E.C. 10

AUREOMYCIN *means* GREATER ACTION / SMALLER DOSAGE / LOWER COST

*TRADE MARK

Technical literature on request.

LEDERLE LABORATORIES DIVISION *Cyanamid Products Ltd.*

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Capsules
Dental Cones
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‡ *At present available to hospitals only*

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Lederle
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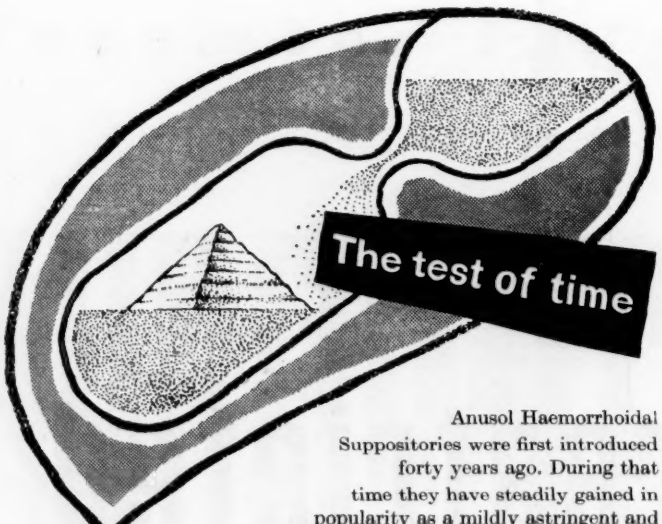
BUSH HOUSE · ALDWYCH · LONDON, W.C.2 · TEMPLE BAR 5411



Anusol Haemorrhoidal Suppositories were first introduced forty years ago. During that time they have steadily gained in popularity as a mildly astringent and antiseptic remedy for haemorrhoids and simple ano-rectal inflammations. They meet all the essential requirements — economy in use, ease of insertion, decongestive effect, lubrication, mild antiseptic action and prompt relief without narcotics or analgesics.

FORMULA:

Bismuth subgallate, 2.12%, Bismuth oxyiodogallate, 0.03%, Bismuth oxide, 0.87%, Resorcin, 0.87%, Balsam of Peru, 1.77%, Zinc oxide, 10.60%, Boric acid, 17.85%, Base of cacao butter and beeswax, q.s. ad 100.00%.

PACKING:

Suppositories: boxes of 12; also boxes of 100 for dispensing purposes at 16/8d. (not subject to P.T. on prescription). Ointment: 1 oz. tubes.

ANUSOL

No Warner preparation has ever been advertised to the public.

WILLIAM R. WARNER & Co. Ltd.,
Power Road, London, W.4.

Sympatol

REGD. TRADEMARK

A CARDIOVASCULAR DRUG

Brand p-Methylaminoethanolphenol tartrate

PACKING AND SIZES:

Sympatol liquid 10%

Bottles of 20 ml.

Bottles of 100 ml.

Sympatol ampoules (0.06 g) for injection

Boxes of 6 ampoules

Hospital Pack

of 30 ampoules

For the treatment of collapse

For the treatment of constitutional hypotension

For the management of hypotensive conditions in infectious and chronic illnesses

LEWIS LABORATORIES · LTD · LEEDS

There is no other Rauwolfia product like...

RAUWILOID

Brand alkaloid hydrochlorides of Rauwolfia Serpentina

Outstanding in the treatment of mild hypertension

Because... Rauwiloid is free from the inert matter in the crude root and its undesirable substances (for instance yohimbine type alkaloids).

Because... Rauwiloid contains, besides reserpine, a number of active hypotensive alkaloids, for example rescinnamine * (recently isolated by Riker Research) and reported more hypotensive and less sedative than reserpine.

Because... Rauwiloid (constant in potency and action), is fractionated only from carefully identified, unadulterated Rauwolfia serpentina, Benth.

* *Pharmacological Studies with Rescinnamine, a New Alkaloid Isolated from Rauwolfia serpentina, Proc. Soc. Exper. Biol. and Med.*, 1954, **86**, 120.

Dosage is Simple...

TWO TABLETS NIGHTLY

RIKER

Detailed literature on request

RIKER LABORATORIES LTD

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Registered users of the trade mark 'RAUWILOID'

Bloodless revolution

The introduction of 'Dextraven' has made available for the first time a dextran solution with controlled optimal molecular content which has been referred to as " narrow fraction dextran." It produces rapid elevation and prolonged maintenance of blood volume and normally ensures that over 50% of the dextran administered remains in the circulation after 24 hours —a longer period than has been possible with any previous blood volume restorer. 'Dextraven' is the preparation of choice for the restoration of blood volume. The British Encyclopædia of Medical Practice (Medical Progress, 1952) states—" There is little doubt that the narrow fraction *dextran will revolutionise* supportive therapy and may be regarded as one of *the major advances of the year.*"— Truly a bloodless revolution.

Dextraven TRADE MARK

Developed by **research** *at*

Benger Laboratories

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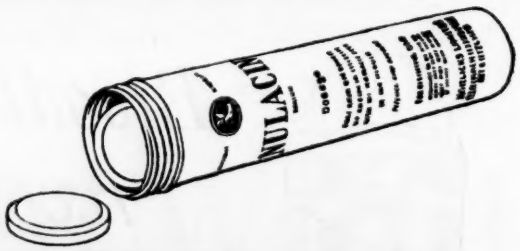
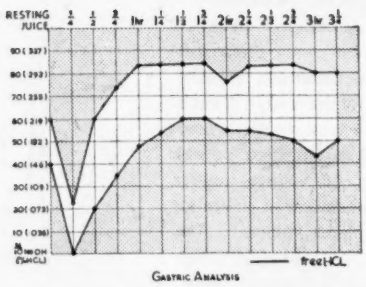
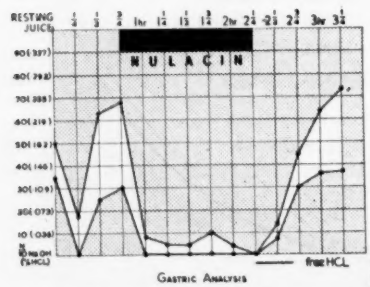


NULACIN

for successful peptic ulcer therapy



Superimposed gruel fractional test-meal curves of five cases of duodenal ulcer



Same patients as in Fig. 1, two days later, showing the striking neutralizing effect of sucking Nulacin tablets (3 an hour). Note the return of acidity when Nulacin is discontinued.

NEUTRALIZATION of gastric hyperacidity has long been acknowledged as the first requirement of successful peptic ulcer therapy. In the past it has only been possible to achieve this with milk-alkali drip therapy under hospital conditions.

Now NULACIN provides all the advantages of milk-alkali drip therapy without the discomfort of a tube and without inconvenience to the patient.

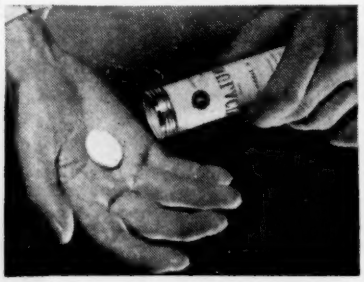
INDICATIONS

NULACIN tablets are indicated whenever neutralization of the gastric contents is required: in active and quiescent peptic ulcer, gastritis, gastric hyperacidity.

Beginning half-an-hour after food, a NULACIN tablet should be placed in the mouth and allowed to dissolve slowly. During the stage of ulcer activity, up to three tablets an hour may be required. For follow-up treatment, the suggested dosage is one or two tablets between meals.

NULACIN tablets are not advertised to the public and have no B.P. equivalent. May be prescribed on E.C.10. The dispensing pack of 25 tablets is free of Purchase Tax. (Price to pharmacists is 2/-). Also Available in tubes of 12.

NULACIN tablets are prepared from whole milk combined with dextrins and maltose, and incorporate Magnesium Trisilicate 3.5 grs.; Magnesium Oxide 2.0 grs.; Calcium Carbonate 2.0 grs.; Magnesium Carbonate 0.5 grs.; Ol. Menth. Pip. q.s.



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Clinical Investigation into the Action of Antacids. *The Practitioner*, July 1954, 173:46

NULACIN

is available throughout the British Commonwealth, in the U.S.A. and many other countries. It is known as Nulactin in Canada and Sweden.

HORLICKS LIMITED

PHARMACEUTICAL DIVISION · SLOUGH · BUCKS.

The manifestations of a functionally disordered gastro-intestinal tract, agonising at their worst, are at their least a source of social embarrassment which can be distressing in the extreme. Busy people, who must often go long hours without time for food, have good reason to hail the advent of an effective anti-spasmodic which will, in more senses than one, quieten their yearning bowels.

MERBENTYL

distributed in the United Kingdom & Eire by
RIKER LABORATORIES LIMITED, LOUGHBOROUGH, LEICS.
for the Wm. S. Merrell Company, London.

MERBENTYL *Tablets each containing 10 mg. Diethylaminocarbethoxybicyclohexyl hydrochloride.*

MERBENTYL WITH PHENOBARBITONE *Tablets each containing 10 mg. Diethylaminocarbethoxybicyclohexyl hydrochloride and 15 mg. (gr. ¼) Phenobarbitone.*

Each in bottles of 50 and 250 tablets. The basic N.H.S. cost of treatment is less than 5d. a day.

IN EVERY DOCTOR'S BAG...

Where penicillin therapy is indicated, more and more doctors are now using 'Distaquaine' preparations, the ease of administration and convenience of which are particularly suited to the needs of the busy practitioner.

'DISTAQUAINE' brand *G*

Procaine penicillin G for intramuscular administration in aqueous suspension

vials of 300,000, 900,000 and 3,000,000 units.

'DISTAQUAINE' brand *Fortified*

Procaine plus potassium penicillin G for intramuscular administration in aqueous suspension

vials of 400,000, 1,200,000 and 4,000,000 units.

'DISTAQUAINE' brand *Suspension*

'Distaquaine' G in ready-prepared aqueous suspension

vials of 10 ml. (300,000 units per ml.)

Advantages:

* aqueous, containing neither oil nor wax
* easy to prepare and administer
* least possible pain on injection
* effective levels up to 24 hours following administration
* dry syringe unnecessary
* equipment easily cleaned after use

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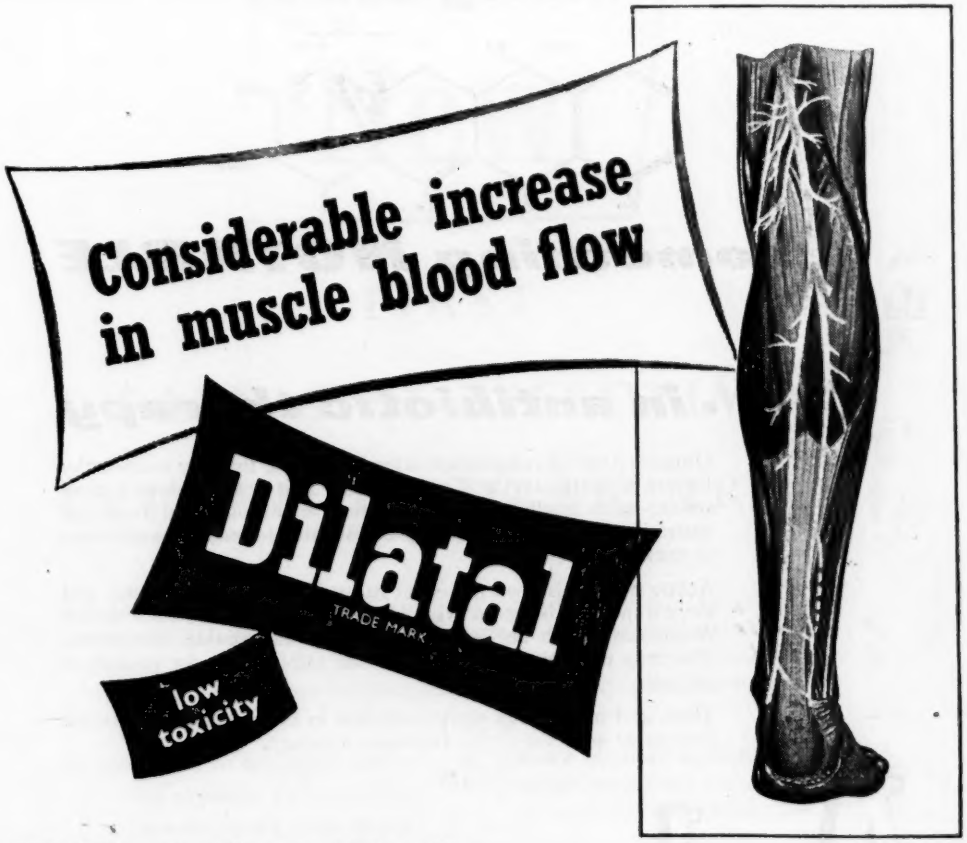
24



Widely indicated in the treatment of circulatory disorders

- INCREASED CARDIAC OUTPUT MAINTAINS MEAN ARTERIAL PRESSURE.
- DIRECT ACTION ON THE MUSCULATURE OF THE BLOOD VESSELS.

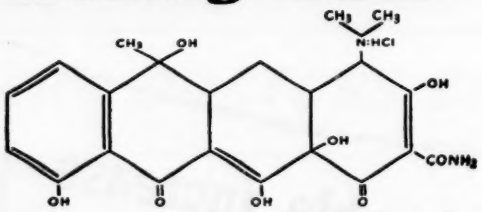
DILATAL* is safe and rapidly effective by oral and parenteral administration. Available in tablets (2.5 mg. in containers of 100 and 500) and ampoules (5 mg. in 1 ml.—in boxes of 12).

* 1-(p-hydroxyphenyl)-2-(1'-methyl-3'-phenyl-propylamino)-propanol-(1) hydrochloride

SMITH & NEPHEW LTD.,
WELWYN GARDEN CITY, HERTS.,
the marketing organisation of Herts Pharmaceuticals Ltd.,
the manufacturers and owners of the trade mark DILATAL

GM180

something NEW



something NOTABLE

. . . in antibiotic therapy

Unique chemical composition is far from being the only noteworthy feature of ACHROMYCIN Tetracycline. This new antibiotic is more stable, more readily soluble and more easily absorbed from the gastro-intestinal tract than any of the broad-spectrum antibiotics in current use.

ACHROMYCIN is unsurpassed in its antibacterial range. But still more important is the fact that extensive clinical trials have shown ACHROMYCIN to be completely free of undesirable side-effects. The drug can therefore be given with safety, even for prolonged periods.

These and many other merits combine to make ACHROMYCIN an invaluable addition to the antibiotic armoury.

Achromycin*

Hydrochloride Tetracycline HCl *Lederle*

* Regd. Trade Mark

Capsules : 50 mg.—vials of 25 and 100 : 250 mg.—vials of 16 and 100
Intravenous : vials of 250 mg. and 500 mg.
Spersoids† Dispersible Powder : Jars of 36 Gm. and 75 Gm.
Each 3.0 Gm. contains 50 mg. of Achromycin Tetracycline.

† *Trade Mark*

Achromycin is at present available to hospitals only.

Lederle

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BUSH HOUSE · ALDWYCH · LONDON · W.C.2 TEMPLE BAR 5411

New

FIRST

SAFE AND EFFECTIVE

INTRAMUSCULAR IRON

BENGER LABORATORIES, who introduced the first intravenous iron preparation, now present a new and equally effective iron complex for intramuscular administration. ITS NAME IS IMFERON. The introduction of this new compound considerably simplifies the control of iron deficiency anæmias in both hospital and general practice. *Note these advantages . . .*

★ **Imferon** is the first safe and effective iron preparation for intramuscular injection—equally suitable for general practice and hospital use.

★ **Imferon** is well tolerated. Reactions of the kind which have been reported with saccharated oxide of iron have not been observed.

★ **Imferon** produces a haemoglobin response identical with that obtained by saccharated oxide of iron. The response is thus predictable.

★ **Imferon** provides the equivalent of 250 m.g. of iron per 5 ml. injection; fewer injections are therefore necessary to administer the calculated total dose.

AMPOULES 2 ml. (100 *mg. Fe.*) boxes 10 and 100. AMPOULES 5 ml. (250 *mg. Fe.*) boxes 5 and 50.
Fully-descriptive literature on request. A Technical Information Service is at your disposal.

Imferon TRADE MARK

Iron-Dextran Complex

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RESEARCH

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Irritable colon . . .

Irritable colon is treated by combating intestinal infection and by relieving intestinal spasm. For the latter purpose Belladenal has been found admirably suitable (1).

BELLADENAL

Belladenal provided continuous relief in 700 patients suffering from irritable colon. None of the belladonna-barbiturate mixtures was as effective as Belladenal (2).

References : (1) *Gastroenterology*, 1949, **13,** 6.
(2) *Virginia med. (Semi-) Mon.*, 1954, **81,** 109.

Presentation : *Tubes of* 20 *and* 100 *tablets, each containing* 0.25 *mg. Bellafoline and* 50 *mg. phenobarbitone.*

Dosage : ½ *to* 1 *tablet, three times daily.*

Literature and samples available on request.

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SANDOZ PRODUCTS LIMITED

134, *Wigmore Street,* *London, W.*1

THE PRICE OF LIFE

Those who are concerned about the cost of the National Health Service can prescribe "the best sulphonamide for routine use" with an easy conscience. 'Sulphamezathine', increasingly used every year, is now reduced in price.

Always an economical drug it is now, indeed, remarkably cheap. For example, with 'Sulphamezathine', it costs less than five shillings to cure the average uncomplicated case of pneumonia.

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ANTRENYL

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For the Rapid Relief of

GASTRO-INTESTINAL PAIN

Particularly in

PEPTIC ULCER

and other conditions associated with hypermotility or spasm.

Well tolerated in the usual therapeutic doses

Available in tablets containing 5 mg.

2-diethylaminoethyl-α-cyclohexyl-α-phenylglycollate methobromide

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WESTERN MEDICINE IN THE MODERN WORLD*

Sir DAVID LINDSAY KEIR
M.A., LL.D.
MASTER OF BALLIOL COLLEGE, OXFORD

THE interests and experience on which I want to draw are twofold. First, those that arise from many years spent in the study and teaching of history, in trying to think in historical terms and to encourage others to do the same. Second, those that arise from contact with medicine and medical education, in universities at home and overseas. These two combine to suggest to me a view of medical knowledge and its advancement and diffusion as one of the great formative forces in history.

There is of course nothing specially new in the idea that the health and the wealth of nations and the rise and fall of their fortunes and civilisation have constantly been interconnected. The historian of ancient times can hardly fail to observe the significance of the gradual depopulation through disease of such regions as the Roman Campagna. The historian of medieval England similarly must take account of the effects of the Black Death on the social and economic organisation of the 14th century. What the historian of the modern world must recognise is that the processes of history during the 19th and 20th centuries require a corresponding interpretation, and one of a highly significant kind, because the part played in them by medicine and medical education differs wholly from anything recorded in the past. Man is no longer restricted by conditions which he neither understood nor could control and before which he has so often been driven into retreat. The knowledge he has gained in the last two hundred years of medical advance, and especially since the mid-19th century, has already largely transformed, and is still transforming his whole relationship with his physical environment. It has effected changes, political, social, and economic, the full effect of which on the course of history thus far has still to be measured, and which are now releasing forces capable of reshaping our world.

During the last hundred years, two processes have gone forward side by side, and in fact hand in hand. One has been the expansion of Western political authority over the rest of the world: the other, the triumph of Western medicine over all other systems. Along with or close behind the European explorer, trader, and administrator have come the European doctor and the European teacher of medicine. And in this context, European has commonly meant British. One may therefore concentrate attention, without getting too much out of focus, on the British imperial achievement which, along with parliaments, courts of justice, and other political institutions bearing the marks of their island origin, has spread over so much of the world hospitals and medical schools fashioned on the same pattern as this one, teaching as this one teaches, rendering such services as this one renders, and in the same spirit. It is this aspect of the place of medicine in history that most deserves the attention of the historian, and the doctor too.

* * *

Western expansion, and in particular British expansion, over the rest of the world, has taken on a new form in modern times. No longer confined to the exploration and settlement of countries in the temperate zones, it set about the creation of vast tropical dependencies, where in earlier times there had been little beyond the West Indian sugar islands, some few others of the same kind elsewhere such as Mauritius, and trading stations strung out along the sea-lanes of ocean traffic. Within a little more than fifty years, the whole scene changed. The acquisition of the East India Company's possessions by the Crown, followed by that of Burma, Malaya, Borneo, and New Guinea, created a vast Asian empire, extended still further into the archipelagos of the Pacific. Even more remarkable was the process which turned the greater part of tropical Africa into an empire previously no larger than the coastal settlements of Gambia, the Gold Coast, and Sierra Leone. These events, crowded into a few brief dramatic years, engaged British medicine, over a far-flung battle-line, in the most exacting conflict to which it had ever been committed. Under conditions still imperfectly known or understood, it was to do battle with diseases which had either vanished from Europe or never been known there. Leprosy, cholera, beriberi, malaria, yellow fever, and a host of others—above all tuberculosis, "captain of the men of death"—had made tropical countries not only the white man's grave but the grave of other races as well. The days were over when the occasional European doctor in the isolated trading settlement or island or garrison or naval station did what he could, which usually meant little enough, for the health of his fellow-exiles. In every part of those vast regions, for all their countless inhabitants, Western medical knowledge was imperatively summoned to employ the full range of its resources.

These resources were slender enough. Western medicine, though so long in intermittent contact with the Asian and African world, had been slow in establishing superiority over the indigenous sytems on which so many millions had for so many generations relied. At the very earliest stages, probably, it had been little superior, if at all, to the Arabic system with which it shared its Hellenic origins; somewhat better perhaps than the Vedic medicine of India; somewhat behind, it may be, the medicine of China. But it could approach its new responsibilities with incomparable advantages: its association with Western science; its intellectual tradition of free inquiry and precise observation; its humanitarian spirit; and its status as an open liberal profession. To these its triumph has been due.

The response made by Western medicine to the challenges it now took up has changed the course of history. Before the mid-19th century, it brought to the contest with disease in tropical lands only one major weapon—immunisation against smallpox. By the mid-century, surgical anæsthesia and antisepsis had been added to its resources. The rest was still to be done; and in a half-century more, and a famous one, it was largely achieved. From 1875 onwards, the micro-organisms of dysentery, typhoid, malaria, cholera, plague, and over a score of other diseases which had for centuries denied large areas of the globe to human development or even habitation had been identified. So had most of the insect vectors by which they are transmitted. This epic half-century closed in fitting fashion with the tremendous discoveries of Ross. Close behind the advance of the bacteriologist came that of the student of preventive medicine and of therapeutics, moving from one victory to another, from the vaccines of the '80s to the sulphones and antibiotics of today.

The gain thus achieved was used to broaden the front of the attack, to extend it to the conditions under which disease had maintained a hitherto ineradicable hold, to bring in the chemist, the biologist, and the engineer. Nutrition, sanitation, housing, and town-planning were one by one added to the list of tools to be used for the job. And here and there the end of the job can be seen. In such a territory as Singapore, with its governmental and municipal health services, its magnificent hospitals, its rural health centres, its urban re-housing scheme, pure

* From an address given at the opening of the session at Westminster Medical School on Oct. 4, 1954.

water-supply, antimalarial spraying, all protected by the defensive perimeter of its sea and air quarantine stations, the fight is virtually over and the victory won. For here is an island about the size of the Isle of Wight, with 1¼ million inhabitants, a death-rate about the same as that of the United Kingdom, an infantile mortality rate the same as ours of only thirty years ago, and a population increasing so fast that, even if a new school for 500 children were to be opened every fortnight, the education department could not keep pace. With a rising population, moreover, has gone a rising standard of living, to which industrialisation as well as improved agriculture contributes. With them, comes education, political awakening, the quest for power. The East's awake.

* * *

If I mention specially the Colony of Singapore, it is not because it is a special case, but because it is achieving standards of Western medicine which are being approached in many places, for example in the Federation of Malaya itself. The other Eastern Colony of Hong-Kong has a similar standard, maintained in even more overcrowded conditions, and made the more difficult by the influx of its 350,000 refugees from China, but nevertheless maintained. Elsewhere, one notes the complete elimination of malaria from Mauritius, of yellow fever from the West Indies, and virtually from West Africa as well. And many other instances could be added. Summing up, it can be said that many diseases which have long impoverished life over a large part of the world are on the way out, and the rest, including tuberculosis and leprosy, becoming normal medical and social problems. On these, so far as they are still of specialised interest—and many are—the specialist research man-power of the Empire is ceaselessly engaged at home and overseas, but mainly in areas of its own choice. Extensive fields, cleared by the efforts put forth in this brilliant period of medical progress, have been made over to the domain of ordinary preventive and clinical medicine, the clinical medicine being in essentials identical with clinical medicine at home.

The outlines of the medical picture are becoming clear. As industrialisation, urban life, and transport have developed, the large general hospital has become the hub of the system, supported by district hospitals, and in the remoter areas by mobile dispensary vans and boats—for the river is sometimes the main highway. Outside the towns, private practice may be virtually non-existent, and even in the towns a majority of patients come self-referred to crowd the swarming outpatient departments, awaiting diagnosis and treatment. There are unforgettable scenes of picturesqueness, if also of squalor, of suffering but also of hope. Passing from the outpatient department to the wards brings home to one, just as unforgettably, the extent of the triumph Western medicine has won. Here one no longer finds patients suffering from the diseases peculiar to the tropics. My notes on the clinical material available for teaching both in Malaya and in East Africa reveal clearly that there is no significant difference between the medical and surgical conditions which occur there and those found in the teaching hospitals of the homeland. Some differences there are, and highly interesting to the researcher in scientific or clinical medicine. But they are variants on an accustomed theme. Nor is there any difference between the diagnostic and therapeutic resources available to cope with them and those available at home. Wards, theatres, laboratories, specialist departments as found for example in Singapore, Penang, Johore, and Malacca, in King George VI Hospital, Nairobi, and in many other places as well, are in line with the best Western practice—and the outlook for new building and equipment much more bright. It would be misleading to omit the other side of the picture in these great underdoctored regions of the world—to forget the slenderness of the medical man-power deployed in the remoter areas, the foothold still retained by disease, especially disease due to malnutrition and faults of diet, parasitic infestation, and the bacterial enemies of man. But the general pattern of the attack has been marked out. In the forefront, the medical research units, such as those engaged on leprosy and on filariasis: then the preventive services: then the local clinics, static or itinerant: and at the focal points, the hospital and the services radiating from it. Such is the order of battle.

The forces engaged are, of course, in the main publicly provided, for usually there can be no other assured foundation. Their essential strength lies in the Colonial Medical Service, whose record forms one of the most splendid pages in British imperial history. That service is still the vanguard. But it has many associates: the medical missions, such as that which furnishes a clinic for a New Village of some 5000 people a few miles from Kuala Lumpur; works and estate hospitals: the medical services of the British and American forces, the Medical Research Council, and the World Health Organisation, all three mostly involved in medical research. The European, American, or Australian finds increasingly that his efforts are seconded by those of the Asian or African with a basic training and sometimes with professional credentials such as a fellowship or membership which result from a training identical with his own. Thus a Chinese is medical superintendent of a largely European-staffed general hospital in Malaya, and in the Mulago General Hospital in Uganda three-quarters of the surgery is performed by African surgeons. Western medicine is not only international, it is now multiracial.

One may perhaps ask onself how far, as this process continues, a place is still left for the European and especially the British doctor. It has to be admitted that Asianisation and Africanisation has its political aspect and is sometimes advocated on grounds that have nothing to do with medicine. But a sense of proportion about the problem as a whole suggests other conclusions. The problem is virtually world-wide. While in one favoured territory the job is done, elsewhere, as in East Africa or Nigeria, the task extends over many years ahead, and the need is urgent. How urgent, one cannot fail to realise after even the briefest experience. It can only be met if racial considerations are disregarded. And, naturally enough, it is for the ablest men and women—to do specialist work in hospitals, where a man suitably qualified and experienced but still young, will find himself with beds and wards and responsibilities, and contact with visitors who are leaders in his profession, beyond anything he could expect elsewhere: for medical teachers in the universities: for medical scientists in the research institutions.

In saying all this, however, I diverge; so I return to my main theme.

Western medicine has transformed the modern world. Where it goes, life takes on a shape never known before. It makes possible the enterprises of the builder, of the agriculturist and stock-breeder, of the miner, of the engineer—without it, for example, such a scheme as the great Owen Falls dam on the Uganda Nile would have been impossible even to attempt—of all who are bringing prosperity to peoples who have been condemned for centuries to poverty and the frustration and suffering that goes with it. It is helping in the creation of new nations made up of healthy and intelligent men and women, who can see to themselves and play a part which history has so far denied them.

And there is more to it than that. It would be a thin and inadequate view of history that related it only to material progress and left out the things of the mind and spirit. Western medicine has not won its triumph solely by its scientific method, its technical equipment, and its

command of physical and financial resources. Yet to many who have resort to it in these underdeveloped and primitive lands, it is so far respected mainly because of its practical results: and to some who practise it gainfully, for substantially the same reason. The Western doctor will not have completed his mission until along with the practical skill he imparts he can instil into medicine in other lands the spirit and outlook he himself has inherited: that medicine is humane art enriched by centuries of generous work for the relief of human suffering and sorrow; a gentle art that deals kindly with individual men and women; a wise art that has taught itself to think of the whole complex round of life, experience, and character as lying within its scope. It is for these things most of all that the world will have cause to thank the West: not just for material prosperity, ordered government, intellectual progress, though all have their value, and that value is great. There is another service beyond these, which medicine can render as almost nothing else can: that which comes from the simple sense of human need and one's power to bring relief.

Nothing perhaps inspired me more than the affection borne towards the hospitals and medical schools and colleges of this country by men of other races who are engaged in those distant and difficult fields, where medical work is a test of belief and character as well as of professional skill. Our tradition is theirs too. They have learned, as part of it, the humanity as well as the science of medicine. The more reason for honouring that tradition, and all who uphold it.

Such are some of the things I have seen and the impressions they have made. They have moved me. Perhaps they will move others too, if not to share in the work, at least to form some idea of what it is, how it fares, and what it means to the world now in the making.

CEREBRAL VASCULAR DISEASES

THEIR SIGNIFICANCE, DIAGNOSIS, AND PRESENT TREATMENT, INCLUDING THE SELECTIVE USE OF ANTICOAGULANT SUBSTANCES *

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CEREBRAL vascular diseases include some of the most serious and widespread of disease processes which still remain among those most neglected. Too long they have been treated with a fatalistic philosophy rather than a dynamic one, and no serious attack has been made on the social, economic, and personal problems they present.

A conference dealing with many aspects of cerebral vascular diseases was recently held in Princeton under the auspices of the American Heart Association and the National Heart Institute, and acknowledgment is herewith made to the participants in the conference for many of the comments contained in this brief presentation.

* Presented before the annual meeting of the American College of Physicians, Chicago, April 7, 1954. This address is published in the October issue of the *Annals of Internal Medicine* and appears here by courtesy of the Editor of that journal. The work was aided by grants from the Kress, Lasker, Hyde, and Hampil Foundations and the U.S. Public Health Service.

Prevalence

The true dimensions of this problem are still obscured by lack of knowledge of the various diseases involved, by inadequate and incorrect diagnoses, and by sparse statistical data. Even the best available statistics cannot be looked upon as completely satisfactory or definitive. However, they do present the problem in its broad outlines. They are presented in round numbers.†

In 1952, 170,000 people died in the United States of cerebral accidents—or strokes. This is over three times the number who died from diabetes and tuberculosis combined in the same year.

It is estimated that there are 1,800,000 victims of cerebral vascular disease in the United States today. When it is realised that a large but unknown percentage of these require from 1 to 4 people to care for them, the impact on community and family life becomes more apparent.

Cerebral arteriosclerosis is the second leading cause of first admissions to the State mental hospitals, schizophrenia being the leading cause. If first admissions listed under senility are included with cerebral arteriosclerosis, these causes combined account for 25% of all first admissions to State mental hospitals. This has been a continuing upward curve over the years. In 1950, 60,000 such patients were in State hospitals—this does not include similar patients in county, city, Veterans Administration, or private hospitals, nor those cared for at home. 73% of all deaths caused by cerebral vascular diseases in 1952 occurred in people 65 years of age or older. Looking at this in the reverse, 27% occurred in the highly productive years under 65.

44,000 deaths from cerebral vascular diseases in 1952 were in the "working age" group of 25–64 years. Many patients, especially those with rheumatic heart-disease, suffer their first cerebral accident in early adulthood and remain incapacitated for years thereafter.

From the viewpoint of national economy, if these 44,000 people had lived even a single additional healthy year they could have earned altogether over 151 million dollars and would have paid the federal government $18,500,000 in taxes. The average cost per year per patient in a State mental hospital is $777. This really represents very minimal care in many States, but the cost for the 60,000 cerebral-vascular-disease patients in these hospitals is $46,500,000 a year.

These are the cold statistics of a national and community problem, but what of the individual and his or her family? Here the tragedy strikes home. We all know of the middle-aged man who is earning a good living and is a respected member in his community. He has 3 children in school. They have the things Americans have come to expect from life. Suddenly he suffers from a cerebral hæmorrhage and is paralysed. No longer a self-supporting and self-sufficient member of society, he loses his income, requires nurses, doctors, and probably hospitalisation for an indeterminate time. While he may make a satisfactory recovery, if he does not the family economy is rapidly depleted, someone must remain in constant attendance, the education of the children is interrupted, the social status of the family deteriorates, emotional and maladjustment problems arise, the patient changes from a happy, well-balanced person to an embittered, belligerent, difficult person—and from a taxpayer he probably becomes dependent on his community. This is a common picture—too common and too tragic.

Diagnosis

Until recently the diagnosis was an academic matter from the viewpoint of clinical medicine. Today it is increasingly important to determine whether neurological signs of an intracranial lesion are due to hæmorrhage, local thrombosis, embolism from a fibrillating heart,

† Acknowledgment is herewith made to the Albert and Mary Lasker Foundation for aid in compilation of the statistics here quoted.

aneurysm of a cerebral artery, or a tumour. If the type of lesion and its location are fortunate, some form of therapy can now be at least logically considered for many patients. This discussion is concerned with the first three of these possibilities. A few general statements which may prove helpful in formulating a diagnosis are summarised as follows.

Given patients with a normal blood-pressure range, between 60 and 85% of deaths due to cerebral vascular diseases are probably related to thrombosis, provided that the cardiac rhythm is regular. Hæmorrhage and embolism make up the residual percentages. These figures are based on necropsy findings but vary widely in different series. The incidence of recovery from thrombosis, as determined by evidence of previous thrombi seen at necropsy, is high. In clinical practice the actual incidence may be in even greater proportion to the total number of clinically diagnosed cerebral episodes.

If the heart rhythm is irregular, especially in the presence of auricular fibrillation, the incidence of cerebral embolism increases relatively and thrombosis becomes correspondingly less common. This is especially true in patients with old rheumatic heart-disease under the age of 55.

As the blood-pressure is elevated the incidence of hæmorrhage increases and thrombosis assumes a relatively lesser rôle, although it continues to dominate according to most studies.

The history of previous thrombotic episodes or the presence of other evidence of generalised arteriosclerosis with occlusive phenomena is associated with a greater likelihood of cerebral thrombosis.

Evidence of increased intracranial pressure, such as choked discs, unequal pupils, a feeling of marked fullness with headache, increased manometric readings, or signs of rapidly spreading neurological involvement, suggests space-occupying lesions such as hæmorrhage, with or without tumour.

The usefulness of knowledge regarding the appearance and pressure of the cerebrospinal fluid (C.S.F.) has been vitiated by the hesitancy of many clinicians—even some neurologists—to perform the simple procedure of the spinal puncture. This is largely based on a fear that death may ensue, owing to a sudden shift in pressure with compression of the brain-stem into the spinal canal. With proper technique and reasonable caution this risk is reduced to an insignificant level, and 5 ml. or so of C.S.F. removed slowly may greatly clarify the diagnosis. If the "tap" has been done cleanly, bloody or xanthochromic fluid indicates hæmorrhage and contra-indicates any serious consideration of anticoagulant therapy. Clear fluid does not completely rule out hæmorrhage within the brain substance, but in connection with other factors such as those mentioned above may lay a fairly sound basis for the diagnosis of thrombosis or embolism in which case anticoagulant therapy may be considered.

Electro-encephalographic studies may be entirely normal in the presence of rather important lesions of the brain, including vascular lesions. However, if the first tracings after a "stroke" show definite abnormalities compatible with this type of lesion, and if these show progressive changes suggesting improvement during the subsequent weeks, this favours a vascular accident rather than a brain tumour. Electro-encephalography is not, however, to be regarded as an infallible diagnostic procedure in differentiating these conditions.

While angiography has frequently proved helpful in the diagnosis and location of aneurysms and some types of tumours, it is of little or no value in the study of hæmorrhage, thrombosis, or embolism, and it is not without risk.

Vasospastic Phenomena

There is increasingly strong evidence that vasospasm can occur in the cerebral vessels just as it does elsewhere in the vascular tree. We see many patients who have a series of transient or "little" strokes which may range in severity from slight numbness or weakness of the side of a face, or slight difficulty with speech, to complete hemiplegia, and which may last for from a few minutes to several days with complete recovery. They may recur repeatedly in the same day. Some of these may be due to minute thrombi, but many, probably a majority, are based on temporary spasm of the arteries involved. These phenomena have been too casually regarded in the past. They frequently presage a major paralysis with all of its potential tragedy. The frequency with which such reactions are immediately preceded by intense emotional strain or disturbance suggests that in some instances there is a direct relationship, but in other instances no such relationship can be established. Treatment has the best chance of being effective in these cases if undertaken promptly.

Treatment

Any suggestions regarding present-day treatment must be qualified by the acknowledgment that in all probability the discovery of a method to prevent or reverse the development of atherosclerosis will eliminate or greatly delay the onset of most of the effects from cerebral vascular diseases. While such a discovery may appear to some observers to be "just around the corner," the history of science is replete with discoveries which have remained frustratingly aloof for many years beyond the schedules of their euphemistic searchers. Therefore, pending actual accomplishment of the fact, we must devote attention to the problems at hand—the treatment of the phenomena presently encountered.

CEREBRAL HÆMORRHAGE

The location of the hæmorrhage is of the utmost importance. Today surgery should be seriously considered for the relief of the pressure of subdural or extradural hæmorrhages. Patients frequently regain power and even consciousness promptly upon the removal of such pools of blood or clots. These hæmorrhages most frequently occur following severe trauma to the head, and this history is helpful in establishment of the diagnosis. The surgery should be performed promptly and preferably with the blood-pressure markedly reduced.

The more common spontaneous cerebral hæmorrhage does not as yet lend itself to specific therapy. The patient should be kept at complete rest, and if his blood-pressure is markedly elevated efforts should be made to reduce it by phlebotomies or the use of the various hypotensive drugs. Continuous intravenous infusion of sodium-nitroprusside solution has been used for very acute cases.

Massive hæmorrhage within or without the brain tissue frequently results in death, but necropsy studies suggest that many small hæmorrhages may occur without death of the patient—in fact, in some instances without his knowledge of serious trouble.

THROMBOSIS

The conventional form of therapy for cerebral thrombosis is still in many areas largely expectant on the part of patients and physicians as well. The patient is placed at rest and the so-called vasodilator drugs are administered. The evidence that they increase blood-flow to the brain or aid the situation in any way is decidedly inconclusive, the possible exception being parenteral papaverine. When sedatives are necessary to assure rest, often the barbiturates, which are known to be depressors of many critical brain-centres, are used in too large doses.

If the blood-pressure is markedly elevated—let us say to a range of 190/110 mm. Hg or higher for either the systolic or diastolic—consideration should be given to reducing it, but not very rapidly, since that may encourage stagnation in the area of the thrombosis with increased tendency to propagation of the clot.

The work of Kety (1954) and others demonstrated that increased CO_2 in the blood does increase the blood-flow to the brain. The inhalation of this would therefore appear to be a sound therapeutic approach. We do not know for certain, however, that the mere passage of more blood through the vascular tree is necessarily beneficial if that blood is laden with increased amounts of CO_2. It is generally assumed that it is beneficial regardless of this question, but final proof is wanting at present.

The use of the stellate-ganglion block has been advocated during recent years. Favourable reports suggest striking improvement during the early days following a cerebral thrombosis. It is essential to bear in mind the natural course of this syndrome and the fact that many, if not most, of these patients show striking improvement during the first week or ten days. No significant increase in cerebral blood-flow is produced by this procedure. Some patients have shown remarkable improvement coincident with the block only to relapse shortly thereafter. The second and third blocks may or may not be accompanied by permanent improvement. Final evaluation of the indications and usefulness of this procedure must await more extensive experience.

The use of anticoagulant drugs in the treatment of cerebral thrombo-embolism has been under study since our preliminary report in 1946 (Wright 1947). This seems logical as an endeavour to: (*a*) prevent propagation of the original thrombus which might occlude additional branches of the involved artery, thus increasing the size of the infarcted area; (*b*) prevent the development of additional thrombi in other vessels (a not uncommon occurrence in the brain); (*c*) encourage the more rapid disintegration of the original thrombus by the enzyme systems in the blood which may have a freer action in the presence of adequate anticoagulant therapy.

Risks which must be evaluated include:

(1) An error by the diagnosis of thrombosis or embolism when it is actually hæmorrhage which may be aggravated by anticoagulants.

(2) Hæmorrhage frequently encountered in all infarcts. This type of hæmorrhage is rarely if ever aggravated by anticoagulant therapy when it occurs in other tissues such as the heart, lungs, or kidneys, but less is known about its occurrence in the brain during its administration.

(3) Hæmorrhage elsewhere in the body—a calculated and well-understood risk inherent in all anticoagulant therapy.

Our results with anticoagulant therapy in the treatment of both thrombosis and embolism are summarised below.

EMBOLISM

In the treatment of embolism several additional factors must be considered. Since most cerebral emboli arise from mural thrombi in the heart, secondary either to old rheumatic heart-disease with auricular fibrillation, or to myocardial infarction, the original problem requires serious attention. Decompensation should be actively treated. The existence of the original thrombus constitutes an additional indication for anticoagulant therapy. The patient may survive the first embolus only to succumb to succeeding ones arising from the same source, unless the tendency to propagation is successfully interrupted.

Recently a new aspect of this phenomenon has been encountered which requires additional study and thought. There have been a number (although the total is unknown) of cerebral emboli as well as emboli to other sites in the body which have occurred at the time of surgery for mitral commissurotomy. We have seen nine such cases in the past year. This may result in hemiplegia or other serious complications, as in a recent case with multiple emboli producing aphasia with simultaneous gangrene and loss of a foot. It is usually produced by the breaking up of a friable and actively propagating thrombus within the left atrium. Pathological studies have shown that mural thrombi in the hearts of patients treated for ten days or more with anticoagulants tend to be more smoothly sealed over with a fibrin coating, and with fewer friable and irregular fibrillating tails. It appears logical, therefore, to place patients on anticoagulants for from ten to thirty days in preparation for a commissurotomy despite the present lack of statistical proof of its value. Because of the relative rarity of these complications such proof may not be forthcoming for some time.

ANTICOAGULANTS IN THROMBO-EMBOLISM

In 1946 and 1947 (Wright 1947, Wright and Foley 1947) we reported preliminary experience with the use of dicoumarol in the treatment of patients with rheumatic heart-disease with auricular fibrillation and multiple emboli. Since then others (Askey and Cherry 1950, Cosgriff 1950) have confirmed our further observations (Wright et al. 1948, Foley and Wright 1949, 1950, Tulloch and Wright 1954). Recently we have analysed the course of 57 patients who have suffered from cerebral thrombo-embolic episodes and thereafter been treated with anticoagulants (McDevitt 1954). The series with rheumatic heart-disease now consists of 31 patients. Of these, 29 had auricular fibrillation; and 19 had cerebral thrombosis or embolism on the probable basis of arteriosclerosis of the cerebral or coronary arteries with myocardial infarction, while 7 had various different disorders with cerebral thrombo-embolic complications.

Table I shows that in the period of 463 months and 19 days after their first thrombo-embolic episode and before anticoagulant therapy the 31 patients with rheumatic heart-disease experienced 137 embolic episodes, 46 of which were cerebral in location. After anticoagulant therapy was started, during a total period of 709 months and 22 days (a much longer period), this same group of patients experienced 11 embolic episodes, 4 of which were cerebral.

TABLE I—THROMBO-EMBOLIC EPISODES IN 31 PATIENTS WITH RHEUMATIC HEART-DISEASE

Relation to anticoagulant therapy	No. of patients	Total patient months	Total thrombo-embolic episodes	Cerebral vascular episodes
Before	31	463 mos. 19 days	137	46
During	31	709 mos. 22 days	11	4

Only 1 embolic episode occurred when the prothrombin-time was within the range considered to produce optimal anticoagulant protection—namely, 20–40 seconds (control time, 15 seconds ±1).

One group of 6 patients with rheumatic heart-disease and auricular fibrillation who remained on anticoagulants continuously for 162 months suffered no thrombo-embolic episodes. This was in contrast to 16 episodes within 45 months prior to anticoagulant treatment.

When anticoagulant therapy was interrupted, serious thrombo-embolic complications occurred in 10 of 12 patients with rheumatic heart-disease in whom therapy was not continuous (table II). 5 of this group died, and in 4 instances death was directly related to thrombo-embolic complications arising during the period of interruption of anticoagulant therapy. The following examples are illustrative of our experience with this group of patients (further examples of this nature are summarised in table II):

Case 3 was a 53-year-old white female with rheumatic heart-disease who developed auricular fibrillation and one year later had a transient period of left hemiparesis. Two years later she had a myocardial infarct and two months later an embolus to the right popliteal artery. Anticoagulants were begun at this time and continued for forty-two months without further embolic episodes until it became necessary, it was thought, to reduce her anticoagulant level to allow for the

extraction of a tooth. There was an unforeseen delay in extraction and the patient remained off anticoagulants for nine days. Anticoagulants were started again the day of extraction, but before there was a sufficient protection, and at a prothrombin-time of 18·2 seconds, she had a transient left hemiparesis and also an embolus to the right brachial artery. These both cleared rapidly. Anticoagulants were continued and she remained in her usual state, being able to do light housework and make weekly visits to the anticoagulant clinic, until Sept. 9, 1953, almost six years to the day after administration of anticoagulants was begun, when she was admitted to another hospital service with evidence of left cerebral damage. The prothrombin-time on admission was 19·4 seconds. The patient remained in a comatose state during the ten days of hospitalisation. She received 'Depo-heparin'; however, no clotting-times were reported. The prothrombin-time did not exceed 23 seconds. At necropsy there was evidence of two anæmic infarcts on the right, and in the left internal capsule there was a large hæmorrhagic infarct. Whether the final episode was hæmorrhagic or embolic is difficult to say. It is conceivable that embolisation occurred and that with the prolongation of clotting-time by heparin excessive bleeding ensued.

TABLE II—THROMBO-EMBOLIC EPISODES IN PATIENTS WITH RHEUMATIC HEART-DISEASE DURING INTERMITTENT ANTICOAGULANT THERAPY

Case no.	Emboli before anticoagulant therapy	Patient months emboli occurred	Initial period of treatment		Interruption		Emboli	Further periods of treatment		Emboli
			Mos.	Days	Mos.	Days		Mos.	Days	
3	4	36	42	..	..	9	2	30	..	1–death
4*	4	9	14	..	1	3	1	43	..	0
12	3	15 days	..	2	..	20	1	..	12	Death
27	5	24	3	20	..	27	2–death	..	..	..
28	4	21	7	..	..	14	1	17	..	0
31	1	..	5	13	2	..	1	13	..	0
34	3	3	10	..	..	7	2	3	..	0
43	20	132	42	..	1	..	1	42	..	2 ?
44	17	58	1	13	1	25	2	..	15	..
					1	10	1		6	
						7				Death
47*	2	2	..	16	..	8	..	..	2	Death
50	1	..	3	..	2	..	0	69	..	0
55	4	48	3	..	..	7	0	87	..	0

* Cardiac surgery performed during interruption.

Case 4, a 41-year-old white male artist, was admitted to New York Hospital for evaluation before valvulotomy. He had previously experienced four arterial emboli and had been maintained on anticoagulants for a period of fourteen months without embolisation. Anticoagulants were discontinued a month and three days prior to the operation, a period we now consider too long. At the time of operation a thrombus was found in the auricular appendage which was not flushed out, as is now done routinely. When the patient recovered from the anæsthesia it was found that he had a right hemiparesis. He was immediately restarted on anticoagulants and has had no further embolisation in the subsequent forty-three months to date.

In some individuals embolisation may occur in rapid succession, and the following case is an example.

Case 43.—This patient had experienced a total of twenty emboli, nine occurring in the ten days before anticoagulants were instituted on Dec. 6, 1946. She remained on anticoagulants for forty-two months and at that time decided to forgo this therapy. Thirty days later she had a saddle embolus which broke and lodged in smaller vessels of both legs without loss in tissue. Since this incident she has remained on anticoagulants. Except for one episode of transient dizziness and numbness and coldness of the right hand, at a time when her prothrombin-time was low, she has experienced no other complications.

4 of the 6 deaths occurred among those with rheumatic heart-disease who were not given anticoagulants continuously.

Case 44.—This patient was a 47-year-old white female who developed auricular fibrillation in 1941 and experienced her first embolic episode that year. Subsequently, over the next five years, she experienced at least fourteen clinically recognisable embolic phenomena. After rapidly occurring emboli to the brain and the mesenteric and the peripheral vessels, she developed a pulmonary infarct and anticoagulants were given. The patient remained on anticoagulants for forty-three days at which time she was discharged from the hospital on digitalis, meralluride ('Mercuhydrin'), and ammonium chloride. After fifty-five days without anticoagulants she was readmitted to New York Hospital with pulmonary and mesenteric emboli. She was again treated with anticoagulants for fifteen days and discharged without anticoagulants. At this time there were no facilities for the home care follow-up of patients, and anticoagulants could not be given on an ambulatory basis because of the patient's inability to make clinic visits. Forty days later the patient had another pulmonary infarction and she was readmitted. She received anticoagulants for six days, at which time the prothrombin-time was 43·5 seconds. She coughed up clots of blood and anticoagulants were discontinued. Vitamin K was given intravenously on three different occasions because of severe hæmoptysis. The patient received no more anticoagulant therapy, and she died on April 14, fifteen days after her twelfth admission. At post-mortem examination there was an anæmic infarct in the brain, an old organised mural thrombus in the left atrium, and a cast of clotted blood occluding the left main bronchus.

TABLE III—THROMBO-EMBOLIC EPISODES IN 19 PATIENTS WITH GENERALISED ARTERIOSCLEROSIS

Relation to anticoagulant therapy	No. of patients	Patient months	Total thrombo-embolic episodes	Cerebral vascular episodes
Before	19	248 mos. 13 days	48	25
During	19	287 mos. 10 days	8	2

Case 27.—This patient had clinically recognisable emboli, two of which were cerebral. He was given anticoagulants for twenty-two days following an embolus to a renal artery, and, because the prothrombin-time had become elevated beyond a safe level, he received vitamin K and anticoagulants were discontinued. They were not restarted after the prothrombin-time returned to a safe range. The patient died after a series of pulmonary emboli which were confirmed post mortem, having been without anticoagulants for twenty-eight days.

Case 12.—A 30-year-old white female had two embolic episodes, one pulmonary and one cerebral, occurring three days apart. After the cerebral embolus heparin was begun. After forty-eight hours the C.S.F. was re-examined and found to be xanthochromic. Anticoagulants were discontinued and twenty days later the patient had another severe pulmonary infarction. Anticoagulants were restarted. The patient died eleven days later, and at necropsy an anæmic infarct was found in the brain and multiple emboli within the pulmonary arteries. The prothrombin-time on the day of death was 24 seconds.

Further examples of this nature are summarised in table II. Many of the patients in this group represent very early experience with the problems presented by patients with an almost overwhelming tendency to thrombo-embolic complications.

19 patients who suffered from cerebral vascular accidents believed to be on the basis of embolisation arising from a mural thrombus secondary to myocardial infarc-

TABLE IV—PROTHROMBIN-TIMES (SECONDS) RELATED TO HÆMORRHAGIC COMPLICATIONS

Complication	Prothrombin-time				
	Under 19·9	20–24·9	25–39·9	Over 40	Unknown
Hæmaturia ..	1	1	1	4	..
Cerebral hæmorrhage	..	1*	..	1	1*
Excessive menstrual flow ..	..	..	1	..	..
Melæna	..	..	2	1	..
Epistaxis ..	..	..	1	..	..
Ecchymosis ..	..	1	3	1	2
Hæmoptysis ..	..	1	3†	1	..

* Heparin. † Associated with pulmonary infarction.

tion, or to thrombosis of cerebral arteries, were treated with anticoagulants. 8 of these patients suffered 13 myocardial infarctions preceding other thrombo-embolic episodes; some thrombo-embolic episodes did occur at therapeutic levels (table III). 13 of the 19 patients were hypertensive. In 248 months and 13 days before anticoagulant therapy 48 thrombo-embolic episodes occurred, 25 of which were cerebral. During 287 patient months (a longer period) of anticoagulant therapy the same patients suffered only 8 thrombo-embolic episodes of which 2 were cerebral—as in the cases of old rheumatic heart-disease—a striking reduction.

The distribution according to location of complications before and after anticoagulant therapy is shown in table IV. As in patients with rheumatic heart-disease, there is a striking relationship between the recurrence of thrombo-embolic incidents and the intermittent use of anticoagulants. There were 7 patients in this group in whom anticoagulants were used intermittently, and in each instance interruption of therapy was followed by recurrence of thrombo-embolic complications. The following 3 cases illustrate graphically these relationships.

Case 9 is a 53-year-old white male who at the age of 50 experienced his first myocardial infarction, which was mixed

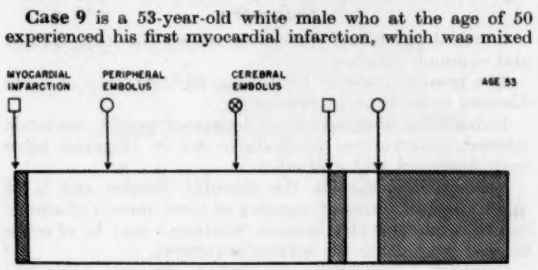

Fig. 1—Relation of intermittent use of anticoagulants to recurrent thrombo-embolic episodes in case 9.

in type. He was admitted to New York Hospital and anticoagulants were begun July 20, 1950, effective levels being reached within seventy-two hours, but dropping below therapeutic levels on six occasions. The patient made a satisfactory recovery and was discharged after thirty days. Anticoagulants were discontinued at that time. Seven months later the patient suddenly developed pain and coldness in the left lower extremity from the knee down; anticoagulants were not given. Eleven months after this episode the patient developed evidence of a left hemiparesis which was transient, the only residuum being a left facial weakness. Eight months later the second myocardial infarction occurred in the posterior base, and the patient was again placed on anticoagulants, this time for forty days. On discharge anticoagulants were again discontinued, and three months later he developed sudden coldness and pain in the entire right lower extremity; an embolus was removed from the right femoral artery and anticoagulants were reinstituted; the patient has remained under this therapy since that time (eleven months and twenty days) without further incident (see fig. 1).

Case 52.—The patient, a 56-year-old white female with known hypertension for ten years, in 1950 had two myocardial infarcts requiring hospitalisation, but no anticoagulants were given. In July, 1951, she was admitted to New York Hospital for anticoagulant therapy following embolisation to a digital artery of the right third finger. Anticoagulants were employed and she was discharged on anticoagulants on which she continued for forty-six days. Because of difficulty in travelling, the patient discontinued therapy. Seven months later she was readmitted with another myocardial infarct and anticoagulants were resumed. She remained on anticoagulants until Oct. 31, 1952, when she was readmitted because of severe epistaxis and evidence of a pulmonary infarction. Specimens of fæces at this time were guaiac-positive. The prothrombin-time was 35·5 seconds. Anticoagulants were

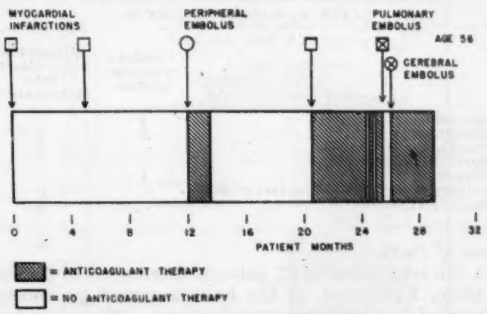

Fig. 2—Relation of intermittent use of anticoagulants to recurrent thrombo-embolic episodes in case 52.

discontinued. Ten days later she developed evidence of a left hemiparesis. During the three weeks preceding this admission, three of the six determinations were below the therapeutic range and may have been a contributory factor in the pulmonary infarction which followed. The patient made a satisfactory recovery and was followed by the home care service of New York Hospital for three months, remaining on anticoagulants during this period (see fig. 2).

Case 20.—This patient is an 84-year-old white female who had a myocardial infarct in March, 1947. She was hospitalised for three months, receiving anticoagulants during that period. Eight months later she had a cerebral thrombosis and was restarted on anticoagulants. She has now been on anticoagulants for sixty-two months without further evidence of thrombo-embolic incident (see fig. 3).

The final group of 7 patients represented a number of miscellaneous diagnoses. During a period of 83 patient months there were 20 thrombo-embolic episodes, 10 of which were cerebral. In 165 months on anticoagulant therapy there were 4 episodes, none of which were cerebral and none of which occurred at adequate prothrombin levels.

Hæmorrhagic Complications

A total of 29 hæmorrhagic complications occurred in 9 patients, most of them minor in nature. The relationship to the prothrombin-time is shown in table IV. It is of interest that the instances of cerebral hæmorrhage occurred in patients who were hypertensive, and that in the 2 patients who died, heparin was the anticoagulant used. Recently, Macmillan and Brown (1953) have reported a higher incidence of hæmorrhagic manifestations following use of intramuscular heparin than that experienced when heparin was given intravenously or when another anticoagulant was employed. The other patient who experienced intracerebral bleeding made a complete recovery. There was 1 instance of increased menstrual flow in this group. Following diagnostic dilatation and curettage there was no further episode of bleeding, and the patient has remained on anticoagulants for six years with no further complications.

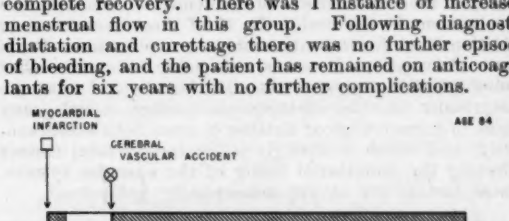
MYOCARDIAL INFARCTION
AGE 84
CEREBRAL VASCULAR ACCIDENT
0 7 14 21 28 35 42 49 56 63 70 77
PATIENT MONTHS
= ANTICOAGULANT THERAPY
= NO ANTICOAGULANT THERAPY

Fig. 3—Relation of intermittent use of anticoagulants to recurrent thrombo-embolic episodes in case 20.

TABLE V—CAUSES OF DEATH

—	Cerebral vascular disease	Rheumatic heart-disease with embolisation
Congestive heart-failure	4	..
Cerebral hæmorrhage	1	1
Cerebral emboli	..	1
Cerebral thrombosis	1	..
Fractured hip	1	..
Post-valvulotomy ventricular tachycardia	..	1
Pulmonary emboli	..	3

Cause of Death

In the total series of 57 patients there were 13 deaths. Of these, 2 occurred, as has been discussed previously, because of hæmorrhagic complications. (The causes of death in these patients are listed in table v.) 7 of these patients were still on anticoagulants at the time of death; the complication led to death at a time when anticoagulant levels were inadequate. 4 patients were under adequate anticoagulant therapy at the time of death, the immediate cause of death, however, being unrelated to such therapy.

It should be remembered that all patients in this series had severe heart-disease and/or vascular disease with recurrent thrombo-embolic complications. The risk of complications of many types is inherent in the natural history of such disease, and such complications are not therefore, necessarily due to anticoagulant therapy.

From the experience gained in studying this group of patients it is evident that anticoagulants may be utilised in the treatment of patients who have had cerebral vascular accidents due to thrombo-embolic complications. The precautions in the use of these drugs have been adequately discussed in previous communications from our group and many others.

The number of thrombo-embolic episodes actually occurring exceeds those diagnosed clinically. This has been confirmed by the report of necropsy material by the Committee on Anticoagulants of the American Heart Association (Wright et al. 1954). These findings were further substantiated in a group of 98 patients coming to necropsy with diagnosis of cerebral hæmorrhage, thrombosis, or embolism during the years 1942–52 on the Second Medical (Cornell) Division of Bellevue Hospital (table VI). Of the 46 patients with anæmic infarcts due either to thrombosis or embolism, 23 (50%) exhibited evidence of 50 major thrombo-embolic complications other than that occurring in the brain. These included pulmonary embolism, myocardial infarction, and occlusion of the inferior vena cava, femoral vein, renal artery, and lower abdominal aorta. In many instances the immediate cause of death was thought to be the thrombo-embolic complication.

52 of these patients had evidence of hæmorrhagic involvement in the brain. In 17 of these there were in addition 23 major thrombo-embolic complications. From these observations it seems reasonable to assume that these episodes represent the manifestation of a severe disturbance in the clotting mechanism, which may result in hæmorrhage or clotting or even both simultaneously, and which is strongly influenced by local factors affecting the endothelial lining of the vascular system. These factors are as yet incompletely understood.

TABLE VI—MAJOR THROMBO-EMBOLIC EPISODES IN 98 PATIENTS WITH CEREBRAL VASCULAR DISEASES EXAMINED POST MORTEM AT BELLE VUE HOSPITAL, 1942–52

Total no. of patients	Diagnosis	Patients with complications	No. of major thrombo-embolic complications
46	Cerebral thrombosis or embolism	23	50
52	Cerebral hæmorrhage	17	23

Value of Anticoagulants in Treatment of Cerebral Vascular Accidents

It is difficult or impossible to obtain conclusive evidence which indicates that the use of anticoagulants has influenced the immediate course of a specific patient after a cerebral vascular accident has occurred. It is, however, the impression of numerous observers that a favourable influence has been exerted. To accumulate additional evidence regarding this point a comparable group of control and treated patients must be studied; such a study is now in progress.

TABLE VII—SUMMARY OF THROMBO-EMBOLIC EPISODES IN RELATION TO ANTICOAGULANT THERAPY

Relation to anticoagulant therapy	No. of patients	Patient months	Total thrombo-embolic episodes	Cerebral vascular episodes
Before	57	795	205	81
During	57	1162	23	6

Summary

Cerebral vascular diseases are among the most serious and common diseases.

The present state of knowledge or treatment of these diseases is far from satisfactory.

Differential diagnosis is no longer of purely academic interest, and various methods to aid in diagnosis have been discussed and evaluated.

Vasospasm occurs in the cerebral arteries and is of importance in terms of warning of more serious phenomena to come, and also because treatment may be of some help in preventing the serious sequences.

Cerebral hæmorrhage is always serious. Surgical methods may be seriously considered for some subdural or extradural hæmorrhages. Most other cerebral hæmorrhage is not amenable to specific therapy at this time.

The use of sympathetic blocks for acute thromboses or emboli is under study at present.

The use of anticoagulant drugs for the treatment of thrombosis and embolism is also in the process of investigation. Their trial appears justified but future experience is essential for final evaluation.

Experience with the use of anticoagulants in the reduction of thrombo-embolic episodes in 57 patients treated for a total period of 1162 months is summarised.

57 patients during a period of 795 patient months before beginning anticoagulant therapy experienced 205 thrombo-embolic episodes, 81 of which were cerebral in location. Following institution of anticoagulant therapy, during a period of 1162 patient months these patients experienced 23 thrombo-embolic episodes, 6 of which were cerebral in location.

The reduction appears to occur in emboli arising from thrombi in the hearts of patients suffering from rheumatic heart-disease and also from acute myocardial infarction.

A reduction in the incidence of recurrent thromboses in the arteries of the brain has also been noted.

The risk from hæmorrhage in the treatment of these diseases with anticoagulants is present but not excessive.

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CEREBRAL VASCULAR DISORDERS *

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THE number of deaths from vascular lesions of the nervous system in England and Wales is large and growing larger every year. According to the Registrar-General's figures in 1942 the number was 56,048 and in 1952 it was 69,388 or approximately 14% of the total deaths. I have analysed a series of 100 hospital patients admitted to the neurological department at the London Hospital

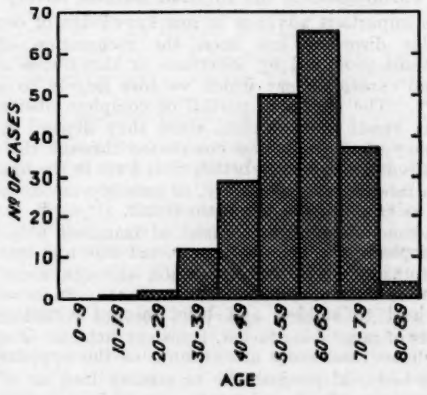

Fig. 1.

and 100 patients seen in private consultation, all suffering from cerebral vascular disease, with special reference to their age-distribution and the nature of their lesion and the correlation between the two. From the chart of the age-distribution of the combined groups (fig. 1) it will be seen that about half are over the age of sixty and about half are under this age, and about one-quarter are below the age of fifty. Hence, as Dr. Irving Wright

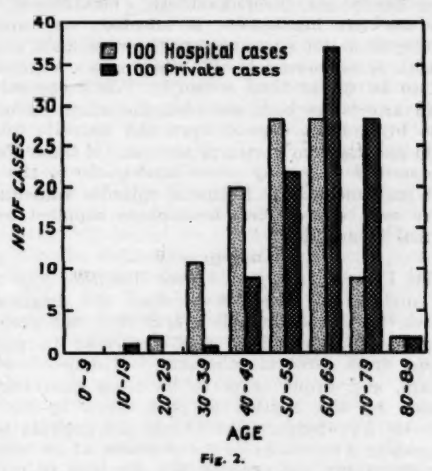

Fig. 2.

points out, it would be a mistake to regard these disorders as predominantly afflicting the elderly and the aged. A substantial proportion of sufferers are in the prime of life. If now we separate the hospital patients

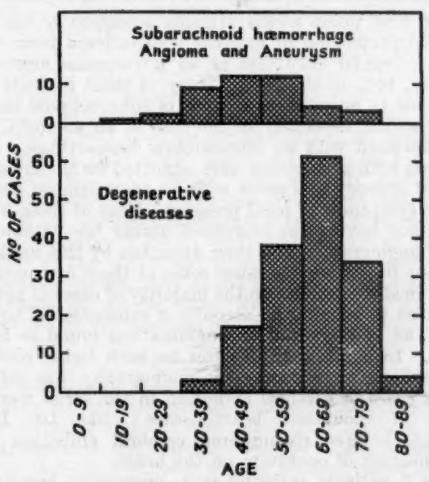

Fig. 3.

from the private patients (fig. 2) an interesting difference in age-distribution appears. More of the hospital patients fall into the younger age-groups and more of the private patients into the older age-groups. Only 37% of the hospital patients are over the age of sixty, whereas 67% of the private patients are over that age. The explanation of this is to be found in the fact that patients with acute cerebral vascular lesions tend to be admitted straight to hospital, and this includes many suffering from subarachnoid hæmorrhage due to rupture of an intracranial aneurysm or angioma, who are younger than most patients suffering from the chronic effects of degenerative lesions of the cerebral vascular system, more of whom are seen in private consultation. This is shown in fig. 3 where the age-distribution of patients suffering from such degenerative diseases is separated from that of those suffering from subarachnoid hæmorrhage, angioma, or aneurysm, the age-distribution of which is also shown in fig. 4.

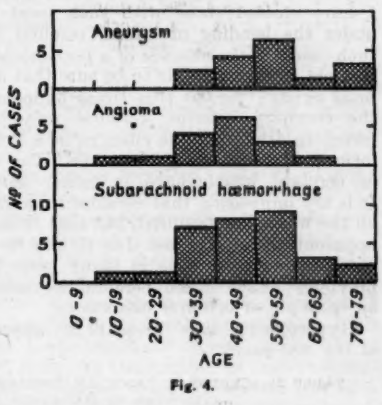

Fig. 4.

TABLE I CEREBRAL VASCULAR DISEASE: DIAGNOSIS IN 200 CASES

		Total	%
Intracranial aneurysm	Verified 10, Suspect 6	16	8
Intracranial angioma	Verified 13, Suspect 3	16	8
Subarachnoid hæmorrhage		30	15
Cerebral embolism		3	1·5
Migraine, with permanent hemianopia		5	2·5
Cerebral arteriosclerosis		77	38·5
Focal cerebral infarction		47	23·5
Cerebral hæmorrhage		6	3
Benign hypertension		96	48
Malignant hypertension		3	1·5

Table I shows an analysis of the pathology in the 200 cases. The total amounts to more than 200 because some patients had more than one type of disorder.

* A paper read to the American College of Physicians at Chicago, April, 1954. This paper is published in the October issue of the *Annals of Internal Medicine* and appears here by courtesy of the Editor of that journal.

The first point which attracts attention is the substantial proportion of patients who suffered from either an intracranial aneurysm or an intracranial angioma—namely, 16% of the total. Many of these patients were admitted to hospital on account of subarachnoid hæmorrhage which, especially in the case of an angioma, may be associated with an intracerebral hæmorrhage. Some patients with an angioma were admitted for the investigation of epilepsy and some with an aneurysm on account of the symptoms of focal pressure. Most of these lesions could not have been diagnosed during life without the aid of angiography, and their detection by this method is of great importance because some of them are amenable to surgical treatment. In the majority of cases of patients admitted to hospital on account of subarachnoid hæmorrhage, an aneurysm or an angioma was found to be the cause. In a minority of cases no such lesion could be detected on angiography, or angiography was refused. The 3 cases of cerebral embolism in the series were the result of rheumatic heart-disease: like Dr. Irving Wright, I have encountered cerebral embolism as a complication of operation on the heart.

The 5 patients suffering from permanent hemianopia as the result of migraine form a small, but interesting, group. This occurrence has been recognised for a long time. Angiography has made it possible to exclude an aneurysm of the posterior cerebral artery as the cause. In such cases I have had instances of a failure of the posterior cerebral on one side to fill on angiography and the most likely explanation seems to be that a spasm of this artery has been followed by thrombosis. The distinction between cerebral arteriosclerosis and "focal cerebral infarction" is a somewhat arbitrary one. I have applied the term "cerebral arteriosclerosis" to those patients whose cerebral lesions were evidently due to arteriosclerotic ischæmia, but who had not at any time presented signs of a substantial focal lesion. I have classed those with such focal vascular lesions under the heading of "focal cerebral infarction." In such cases, in the absence of a post-mortem examination, it is not always possible to be sure that an actual thrombosis exists; for, as sometimes happens in the case of the coronary arteries, cerebral infarction may occur owing to atheromatous changes in a vessel without the formation of an actual thrombus. The number of cases of cerebral hæmorrhage is rather surprisingly small. It is my impression that cerebral hæmorrhage has grown on the whole less frequent, but that change may be more apparent than real, and due to the fact that we have come to recognise that in many cases what we should previously have called cerebral hæmorrhage is in fact an example of cerebral infarction.

Hypertension was present in approximately 50% of the 200 patients.

TABLE II—CEREBRAL VASCULAR DISEASE: PRINCIPAL SYMPTOMS IN 200 CASES

Subarachnoid hæmorrhage	30
Hemiplegia or monoplegia	28
Epilepsy	18
Dementia	9
Parkinsonism	8
Aphasia	6
Hemianopia	6
Pseudobulbar palsy	3
Involuntary movements	3
Thalmic hemiplegia	2
Minor episodes	87

Table II illustrates the relative frequency of the principal presenting symptoms in the 200 patients. Subarachnoid hæmorrhage is not strictly speaking a symptom, but it is a convenient shorthand for the group of symptoms to which it gives rise. It occurred in 15% of cases. Hemiplegia or monoplegia was slightly less frequent as a presenting symptom. Epilepsy of late onset was in this series due either to cerebral arteriosclerosis or to cerebral angioma. Dementia did not occur very frequently as the presenting symptom: the reverse, of course, would be the case in a series taken from a mental hospital. Parkinsonism is also a relatively infrequent symptom of cerebral arterial disease, since most patients suffering from parkinsonism owe their disorder either to encephalitis lethargica or to the degenerative disorder, idiopathic parkinsonism, which appears to be unrelated to disorders of the cerebral circulation. Most of the categories call for no special comment. Of the 3 patients with involuntary movements 1 suffered from hemiballismus, 1 from chorea, and 1 from tremor. 87 patients suffered from minor, and often transitory, cerebral episodes which did not fall into any of the above clear-cut categories.

Thrombosis of the Internal Carotid Artery

One important advance in our knowledge of cerebral vascular disorders has been the recognition of the symptoms produced by atheroma or thrombosis of the internal carotid artery which we owe largely to angiography. The effects of partial or complete obstruction of this vessel are complex, since they depend on the adequacy of the collateral circulation through the circle of Willis and also upon whether clots form in the branches of the internal carotid artery, or possibly are carried to them as emboli from the main trunk.

Prodromal symptoms consist of transient attacks of amblyopia in the eye on the affected side and transient symptoms of impaired circulation through some part of the ipsilateral cerebral hemisphere. Such attacks may lead to sudden and brief loss of consciousness, periods of mental confusion, transient attacks of speech disturbance, weakness of one limb or the opposite half of the body, of paræsthesiæ or sensory loss, or of focal or even generalised epilepsy.

The effects of complete and permanent occlusion are extremely variable. There may be no symptoms at all if the collateral circulation through the circle of Willis is given time to provide an adequate supply to the hemisphere normally fed by the affected vessel and if the other vessels are in a condition to meet this demand. At the other extreme, thrombosis of the internal carotid may cause massive infarction of the whole area of the hemisphere normally supplied by the vessel, leading to severe hemiplegia, hemianæsthesia, hemianopia, and, when the left hemisphere is affected, also aphasia. Between these two extremes are those patients who are left with some persistent disability which seems more often to be motor than sensory. When one internal carotid artery has been occluded the whole circulation of the brain must depend upon the opposite internal carotid and the two vertebral arteries. If these also are atheromatous they may prove inadequate to the task, which may mean that ischæmic episodes subsequently involve even the cerebral hemisphere supplied by the "normal" carotid.

Angiography

What I have already said well illustrates how much light angiography has thrown upon the diagnosis of cerebral vascular lesions. It is true that this procedure is not entirely devoid of risk, especially in patients suffering from cerebral atheroma. Mishaps, however, are rare, and would seem to be more than counterbalanced by the number of lives saved by the new diagnostic knowledge. One should not hesitate to use angiography if one suspects the presence of an angioma or an aneurysm, nor even in the presence of cerebral vascular disease if it is necessary to exclude an intracranial tumour.

The Use of Anticoagulants

Dr. Irving Wright has demonstrated the value of anticoagulants in the prevention of cerebral embolism and has drawn attention to the problems inherent in their use in suspected cases of cerebral thrombosis. Not only is it necessary first to be sure that the disorder

is a thrombosis and not a hæmorrhage, but there may be some risk that hæmorrhage may occur from the area of infarction produced by a thrombosis if the coagulability of the blood is lowered. No doubt for these reasons there has been very little use of anticoagulants in the treatment of cerebral vascular lesions in England, but as we learn more about the disturbances of functions resulting from arteriosclerosis of the internal carotid artery we should be better able to assess the indications for their use in the prevention of thrombosis of this vessel and its branches.

SUPPURATIVE MASTOID SURGERY

YESTERDAY AND TODAY

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IT is too early to form a final opinion on the changes which have followed the widespread use of chemotherapy and antibiotics in suppurative disease of the ear. Their use has certainly had far-reaching effects on the treatment and prognosis of acute otitis media, for acute suppurative complications, such as mastoiditis, are unusual today. The clinical picture of this complication has been completely altered, and classical textbook descriptions are no longer valid; hence the practitioner has had to reorient his ideas on the symptoms and signs of mastoiditis complicating acute infections of the middle ear. The course of long-established chronic infections has, however, not been altered in the same dramatic manner.

It must not be forgotten that other profound changes have also taken place during this same era: the use of the endaural surgical approach to the mastoid; the adoption for mastoid operations of a careful meticulous technique with better illumination than was customary in the past, aided by magnification with the operating-loupe or the microscope; and the smoother operation cavities made possible by the burring of the walls with the electric drill. All these technical advances have emerged largely as a result of the stimulus of fenestration for the relief of non-suppurative disease of the ear, and perhaps it is no exaggeration to say that the greatest contribution that fenestration has made to otology has been the all-round improvement in surgical technique.

In the domain of general medicine, as well, noticeable advances have been taking place: the gradual raising of the economic, educational, and nutritional standards of the mass of the population; the control of the infectious fevers; and the establishment of school clinics (to mention but two of the aspects of the excellent work being done in the field of public health and preventive medicine); the increased use of the specialist facilities at hospitals, free from all charge to the patient, under the National Health Service; and the prophylactic treatment which has been possible because cases are seen earlier before serious ear disorders have become established.

All these diverse and varying factors have no doubt played their part, in greater or lesser degree, in the transformation which has taken place, and still is doing so, in the field of suppurative ear-disease, and it is against this background that the present analysis of mastoid operations done for the relief of acute and chronic mastoiditis at one hospital should be judged.

Material

In the three years 1950–52 inclusive 76 mastoid operations of all types were done by the department of otolaryngology at Hillingdon Hospital, a general hospital serving a large industrial and rural population of over a quarter of a million people. The first striking fact is the small total number of operations which have been necessary in this period, for in the pre-sulphonamide days several operations a week were usually done for mastoiditis at this and similar institutions. The figures from year to year show no big fluctuation, 25 operations being done in 1950 and in 1952, and 26 in 1951; hence it appears that the yearly total is fairly stationary. The department having but one consultant, the assessment for the necessity of operation is the same throughout. The patients have been followed up at regular intervals in the outpatient department and, before this analysis was made, were called up for special interview and review by my registrar, Mr. J. C. Ryan, who has independently assessed the end-results of operation.

Analysis of Operations

The cases have been divided into two main groups according to age, the arbitrary age of 20 being taken as the dividing line between adults, on the one hand, and adolescents and children, on the other, because it was felt that age had some bearing on the type of disease (acute or chronic) and therefore on the type of operation indicated for the eradication of the suppurative disease in the mastoid.

Table I shows the type of operation done according to the pathology found at operation in these two age-groups.

In children and adolescents the cortical mastoid operation was still the commonest, but in a surprisingly large percentage of cases in this group (42·5%) modified radical, or radical, mastoidectomy was required to deal adequately with the disease found on exploration of the mastoid and tympanic cavities.

TABLE I—ANALYSIS OF 76 OPERATIONS

Type of operation	Patients' age (yr.)	
	Less than 20	More than 20
Cortical mastoidectomy	27	8
Modified radical operation	3	4
Radical operation	17	17
Total	47	29

In adults radical surgery was called for more than twice as often as conservative cortical mastoidectomy. The explanation here lies in the fact that most of the cases seen nowadays in this age-group present with well-established chronic disease, the otorrhœa often dating from childhood—i.e., the prechemotherapeutic era. With better control of acute infections of the middle ear it seems likely that in future the number of radical operations required for persistent chronic otorrhœa due to a focus in the mastoid will be considerably reduced. Modified radical operations were only done in those chronic cases where the hearing in the affected ear was reasonably good. In all cases where the preoperative audiogram showed a 50-decibel loss or more on the speech frequencies a complete radical operation was done, to give the patient the greatest chance of having a dry healed ear. Those patients who had good hearing were found at operation to have cholesteatoma limited to the epitympanic space.

Incidence of Cholesteatoma

Particular note was made at the time of operation of the macroscopic presence or absence of cholesteatoma in the mastoid, the aditus, and the epitympanum. Though inflammatory granulation tissue, polyps, and bony necrosis (shown by the disappearance of the incus) were the usual findings in chronic cases (otorrhœa lasting

more than six months), a surprising number of patients in the younger age-group had demonstrable cholesteatomatous deposits—11 out of 47 (23%)—whereas only 4 of the adults (13·8%) were so affected. This fact seems to confirm the likelihood that cholesteatoma is the primary factor, suppuration being a secondary manifestation. If this is so, it can be assumed that cases of chronic mastoiditis with cholesteatoma will always be met with despite the introduction of the antibiotics, and that modified radical, or radical, surgery will still be required in future to eliminate it.

Preoperative Complications

In days gone by it was commonplace to find spread of infection to regions adjacent to the mastoid cavity, but today intracranial complications are rare. Table II shows that only 3 cases were observed. The case of lateral-sinus thrombosis was associated with the adult case of perisinous abscess and was undiagnosed preoperatively owing to "masking." In one patient a temporal-lobe abscess had developed before operation, but this patient was referred for neurosurgical treatment, the radical mastoidectomy was undertaken at a later date, and the patient made an uneventful recovery.

Two patients, both children, presented with preoperative facial palsy. In one of them, a boy aged 3 years, a large cholesteatoma was found, and the facial nerve was explored and found to be intact. In the other child the paralysis arose in the course of an acute mastoiditis, but at operation no cholesteatoma was seen. Both children recovered spontaneously.

Despite the use of the antibiotics, occasional complications still arise whose symptoms and signs may be completely "masked," the complication being recognised only at operation. Like acute mastoiditis, therefore, lateral-sinus thrombosis, once a clear-cut clinical entity, has changed its character.

Postoperative Complications

Table III records 6 cases of postoperative facial palsy, all of these developing at various times from the second to the sixth postoperative days. They were partial lesions, like a paresis rather than a total paralysis, and were doubtless due to the pressure of the pack. Simple removal of the intratympanic dressing to relieve this pressure led to complete recovery in all the cases. Although this figure appears rather high, the explanation lies in the fact that at operation in radical operations the facial ridge was always lowered, as a matter of principle, as far as possible, to obtain the widest available angle between the middle ear and the mastoid cavity, so that a good smooth cavity, free from a high projecting ridge, making for ready epithelisation, was left. The middle ear was thus widely exposed, and it seems inevitable that in some cases the packing should lie across the facial nerve as it runs across the middle ear, with the result that subsequent pressure-paresis ensued. However, since all these partial lesions recovered completely, this complication was of no permanent consequence, whereas a completely epithelised dry cavity is of lasting benefit to the patient.

TABLE II—PREOPERATIVE COMPLICATIONS

Complication	Patients' age (yr.)	
	Less than 20	More than 20
Extradural abscess (middle fossa) ..	1	..
Perisinous abscess (extradural abscess of posterior fossa) ..	1	1 (associated with lateral-sinus thrombosis)
Lateral-sinus thrombosis (associated with perisinous abscess)	..	1
Brain abscess of temporal lobe (referred for neurosurgical treatment before radical mastoidectomy)	..	1
Preoperative facial palsy with cholesteatoma	1	..
Preoperative facial palsy without cholesteatoma	1	..
Total	4	3

TABLE III—POSTOPERATIVE COMPLICATIONS

Complication	Patients' age (yr.)	
	Less than 20	More than 20
Immediate facial palsy	0	0
Delayed facial palsy	3	3
Meatal stenosis	2	0
Persistent otorrhœa requiring re-operation ..	1	0
Total	6	3

In 2 cases meatal stenosis was found. In both of them the postaural route to the mastoid had been used. It is often said that the endaural incision is likely to be followed by a high incidence of meatal stenosis, but this was not found to be so in this series, for, where it was used, not a single case of stenosis was observed, and the site of the incision had all but disappeared for all practical purposes, the outer part of the external auditory meatus looking almost normal, whereas it was grossly deformed whenever the opening had been enlarged by the removal of the cartilage of the concha in radical mastoidectomy done by the postaural route. On the other hand, the endaural incision was planned in such a way that it did not encroach on cartilage anywhere. If care is taken to avoid incision or removal of cartilage it follows that there is little chance of fibrous stenosis of the meatus, and of meatal deformity, providing that the divided skin is sutured accurately. To leave the endaural incision open, as is sometimes done, encourages the formation of granulation tissue, with later substitution by fibrous tissue, and contraction of the scar, with a liability to stenosis.

Persistence of Otorrhœa after Operation

In the past the aim of surgical treatment was to ensure, so far as possible, a dry "safe" ear. This was usually achieved in acute mastoiditis, but in a distressingly high percentage of cases of chronic mastoiditis it was not, the patient being left with a cavity which continued to discharge constantly, owing either to failure of epithelisation of the radical cavity or to reinfection of the middle ear via the eustachian tube.

The problem of the patent eustachian tube is still with us, for there is no certain way of ensuring closure of its lumen. However, the technical advances have enabled the present-day otologist not only to prepare better mastoid cavities but also to remove with thoroughness the diseased mucosa from the middle-ear cavity and the tympanic end of the eustachian tube. Moreover, cases are more carefully selected for operation, those with chronic otitis media arising from chronic tubotympanic infection being rejected. In consequence, as table IV shows, the percentage of "failures" shown by continuous aural discharge has been greatly reduced, although some patients continue to have intermittent otorrhœa from acute infections of the nose and nasopharynx because the eustachian tube is still patent.

As regards the likelihood of a permanently dry ear, the cases in which cholesteatoma was present showed the best results: 13 of 15 have remained permanently dry, the remaining 2 having very slight occasional intermittent discharge.

Persistent otorrhœa following operation complicated only 1 case (table III) in this series. In a chronic case in which good hearing was present conservative surgery was attempted to preserve it, but the attempt failed; so conversion to a full radical cavity was required, necessitating a secondary operation.

Despite the advent of the antibiotics and newer techniques, careful postoperative attention to radical mastoid cavities is still required if satisfactory epithelisation is to be secured. There is no substitute for careful personal aftercare by the experienced otologist if the greatest possible number of fully epithelised radical mastoid cavities is to be obtained.

Aural Function after Operation

In recent years a fundamental change in the outlook of the otologist has taken place. Formerly, owing to the frequency of dire intracranial complications associated with a high mortality, emphasis was laid on providing adequate drainage to the exterior—i.e., making the ear "safe." Today equal attention is paid to the ear's function, the aim of surgery being to conserve as much hearing as possible.

In most cases it is possible to determine the hearing loss to pure tones by audiometry—young children and very ill patients being the exceptions—so that a pre-operative record is available for comparison with a postoperative one. It is often said that radical mastoidectomy reduces the hearing in the operated ear. This was true of 2 cases in the present series, but in the remainder the hearing for speech frequencies was either improved or remained at the preoperative level. The explanation lies in the fact that, when radical surgery was considered necessary, there was already a severe loss of hearing, usually 50–60 decibels for speech frequencies, and after a radical operation the hearing is not reduced below this level, provided the internal ear is undamaged by operative trauma or infection, &c. On the other hand, whenever the hearing was only moderately reduced—e.g., less than 40 decibels—less radical surgery was done if possible.

TABLE IV—POSTOPERATIVE OTORRHŒA

Result of operation as regards otorrhœa	Cortical mastoidectomy		Radical mastoidectomy		Modified radical mastoidectomy	
	Patients' age (yr.)					
	Less than 20	More than 20	Less than 20	More than 20	Less than 20	More than 20
Completely and permanently dry and healed	19	8	12	10	2	3
Intermittent with head colds	5	0	3	6	0	0
Intermittent moist but controlled with occasional local outpatient treatment	2	0	2	1	1	1
Failure; continuous discharge since operation, requiring conversion	1	0	0	0	..	..
Total	27	8	17	17	3	4

Postoperative vertigo was complained of in 4 cases, 2 patients having mild vertigo lasting a few days and 2 others complaining of a slight unsteady feeling, which was satisfactorily controlled with mild sedation and 'Phenergan.' All 4 cases occurred in patients who had undergone radical mastoidectomy. There were no complaints of vertigo after the cortical operation.

There were 4 cases of persistent tinnitus: 1 patient had severe tinnitus preoperatively which was unchanged after the operation; and 3 developed it postoperatively to a mild degree which was not unduly annoying to the patient.

TABLE V—MASTOID OPERATIONS AT HILLINGDON HOSPITAL

Year	Cortical	Radical
1937	46	14
1938	51	15
1939	41	9
Total ..	138	38

Past and Present

In the surgical complications of suppurative middle-ear disease this brief review has confirmed my impressions that great changes have taken place in the past fifteen years. Table v shows that in the three years 1937–39 at Hillingdon Hospital the ratio of cortical to radical operations was nearly 4 to 1. This ratio is very different today (table I). There has also been a sharp decrease in the total number of mastoid operations of all types that have been necessary: 176 in the pre-war years compared with 76 in the period under review, the greatest reduction being in the number of operations done for acute mastoiditis.

Table VI shows that ear, nose, and throat conditions comprised 6·6% of all admissions to this hospital; but operations for suppurative mastoiditis comprised only 3·2% of all ear, nose, and throat operations done in 1950–52. Mastoiditis requiring operation is therefore disappearing. The practical outcome is that it is difficult to obtain a sufficient number of cases for the adequate training of students.

The emergency mastoid is almost a thing of the past—not a single case in this series needed an immediate operation—a very different state of affairs from that existing before the war.

There has also been a great reduction in the number of serious intracranial complications; hence registrars and house-surgeons have little chance of seeing these conditions. They have also changed in character, and classical textbook descriptions are no longer applicable when chemotherapy and the antibiotics have been used, making diagnosis often difficult or impossible. However, the antibiotics and chemotherapy should not be withheld on this account, because their use has led to a great decline in the morbidity and mortality in suppurative disease of the ear.

The otologist has changed his outlook, emphasis being now placed on restoring as far as possible the function of the ear as well as making a discharging ear "safe."

It is likely that in the future fewer cases of chronic mastoiditis will be seen, with a consequent reduction in the number of radical operations and in the number of patients disabled by deafness resulting from chronic suppuration. Nevertheless chronic cases will still occur and will require surgical exploration, because cholesteatoma will continue to be found.

Perhaps it is a vain hope that suppurative disease of the ear will not cause mastoiditis necessitating operation; but, if the present trend continues, suppurative mastoid-

TABLE VI—ADMISSIONS TO HILLINGDON HOSPITAL

Year	Inpatients	E.N.T. inpatients	E.N.T. operations
1950	12,720	738	623
1951	13,264	957	876
1952	13,372	899	814
Total	39,356	2594 (6·6% of all admissions)	2313

Total of mastoid operations done in 1950–52 = 76 (3·2% of all E.N.T. operations).

itis will probably become rare, with the result that the otologist will largely be concerned in preventive treatment rather than surgical, the state of affairs most desired by all concerned.

My thanks are due to Mr. J. C. Ryan, my registrar at Hillingdon Hospital, for reviewing the cases, and to Dr. W. Arklay Steel, medical director, Hillingdon Hospital, and his staff in the medical records department for the figures cited here.

ARTIFICIAL FEEDING AND ENERGY REQUIREMENTS OF YOUNG INFANTS

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TOWARDS the end of last century and, even more so, at the beginning of this century considerable interest arose in the precise chemical composition of infant feeds. Many formulæ were proposed, most of which attempted to modify cow's milk so that its gross chemical make-up resembled that of human milk. Initially, whole milk was diluted, and cream and sugar were added. It was later thought that cow's-milk fat was not readily digestible by the young infant, and the fat-content of feeds was therefore reduced and extra carbohydrate added to make up the calories. Subsequently butter-fat was shown to be easily digestible, and various new formulæ were evolved.

In spite of the confusion of theory infants, on the whole, continued to be satisfactorily nourished, and the most striking conclusion which emerges from a review of published reports on artificial feeding is the wide range of feed composition on which they can apparently thrive. In clinical practice today simple and well-worn rules of thumb serve for the prescription of artificial feeds for infants, and little attention is given to the exact composition of feeding-mixtures prepared for "normal" babies.

The result of inquiries in the city of Aberdeen suggested that many infants, although fed on mixtures recommended by maternity and child-welfare clinics, were not thriving, and it was decided to investigate the chemical composition of such mixtures. In a preliminary study feeds were made up in the laboratory from National dried milk by a trained technician following the instructions on the tin and using the official measure. The labels on National-dried-milk tins prescribe for a range of infants' weights—from 6 lb. to 10 lb. on partly skimmed milk, and from $8\frac{1}{2}$ lb. to 16 lb. on full-cream milk. Feeds were made up for each of these four weights from the appropriate milk-powder. Although the instructions for making up the milk specify that the powder be levelled off with a knife, there is still room for considerable variation in the amount which can be contained in the measure. For this reason the feeds were prepared by two different methods: in one the scoop was simply dipped into the powder and levelled off; in the other it was tightly packed with powder. Sugar was measured with what was considered to be a "medium-sized teaspoon," as specified in the instructions. The results of the analysis of these feeds are shown in table I with the estimated daily calorie intake based on the recommended quantities of feed for each infant.

From his review of published reports Smith (1951) concludes that the average infant requires about 120 calories per kg. (55 calories per lb.) of body-weight daily, and the table shows that, judged by this standard, almost all the feeds had a low energy value. Those made from partly skimmed milk are all well below requirements, particularly for bigger babies; indeed, a 10-lb. infant whose mother uses partly skimmed milk and obeys the printed instructions to the letter may receive no more than half his theoretical requirements. Only when feeds are made from full-cream milk-powder and the measures packed tight are these requirements met.

TABLE I—COMPOSITION AND CALCULATED CALORIE CONTENT OF FEEDS MADE FROM NATIONAL DRIED MILK IN THE LABORATORY ACCORDING TO THE PRINTED INSTRUCTIONS

(Two feeds were made for each baby weight, that on the left-hand side being made by filling the scoop with milk-powder in the ordinary way, and that on the right being made with the scoop packed tight with milk-powder)

Type of milk	Partly skimmed				Full-cream			
Baby's weight	6 lb. (2·72 kg.)		10 lb. (4·55 kg.)		$8\frac{1}{2}$ lb. (3·87 kg.)		16 lb. (7·30 kg.)	
Fat (g. per 100 ml.) ..	0·70	1·05	0·80	1·20	1·90	2·80	2·20	3·45
Lactose (g. per 100 ml.) ..	3·83	4·17	3·08	3·90	2·32	3·21	2·87	4·10
Protein (g. per 100 ml.) ..	1·97	2·67	2·09	2·63	1·77	2·33	2·06	2·85
Sucrose (g. per 100 ml.) ..	6·20	5·50	3·80	3·10	5·53	5·25	3·55	4·35
Calories per 100 ml. ..	53	58	41	48	55	68	53	75
Calories per kg. of body-weight daily	83	90	62	77	97	119	84	118

If such differences between supply and need occur when feeds are carefully made to specification in the laboratory, even bigger differences would occur with feeds made up by mothers in their own homes. To demonstrate this a hundred samples of such feeds were collected for analysis.

Method

Samples of milk mixtures were collected by health visitors of the Health and Welfare Department from Aberdeen homes where a baby aged less than 3 months old was being fed entirely on a milk mixture.

Each health visitor carried with her a 4-oz. 'Polythene' bottle, and if, on entering a home in the ordinary course of her duties, she found a feed prepared she requested a

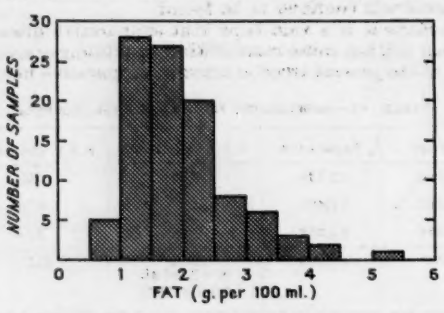

Fig. 1—Frequency distribution of values of fat-content of 100 samples of feeds.

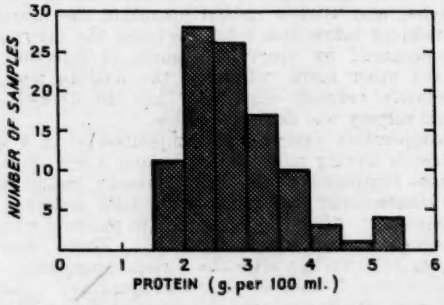

Fig. 2—Frequency distribution of values of protein-content of 100 samples of feeds.

2-oz. sample of it, well mixed. No request was refused. There was therefore no conscious selection of cases. In no instance was a feed specially prepared, and no mother had prior knowledge that a sample might be taken. At the time of sampling a note was made of the total volume taken by the infant daily.

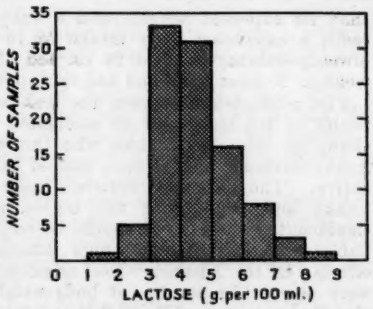

Fig. 3—Frequency distribution of values of lactose-content in 98 of 100 samples of feeds (the 2 others had added glucose, and the lactose was not estimated separately)

Additional information about the general health and gain in weight of the baby, the general competence of the mother, and her home circumstances was obtained from the health visitor concerned.

The Infant

The general health and well-being of the baby was graded subjectively into three classes: (1) "good," babies who looked healthy and were obviously thriving; (2) "fair," those who were doing quite well but, although no specific defect was apparent, did not seem to be in optimal health; and (3) "poor," those who were clearly ailing—the thin and pale, flabby and unhealthy-looking, and those subject to frequent colds.

Illnesses were recorded only where they occurred while the infant was having feeds similar to the one sampled, and within four weeks before or after the sampling.

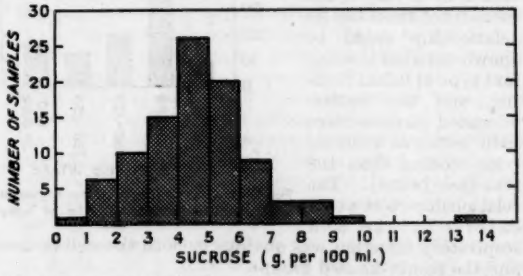

Fig. 4—Frequency distribution of values of sucrose in 95 samples to which sucrose had been added.

The weight of the baby on the actual day of sampling was known in only 2 cases, but it was interpolated in a further 55 from a weight curve. The weight curve was drawn only if at least two weights were available, one on each side of the day of sampling, both recorded while the infant was on feeds similar to the one taken in the sample, and with one weight not more than a week distant from the sampling day. In 31 cases where weights were known within two weeks before and after the sample was taken the daily gain in weight was calculated. The expected weight on the day of sampling was reckoned according to the commonly used rule of Paterson—i.e., birth-weight + 1 oz. a day, the first ten days being neglected.

2 infants were omitted from the analysis: one because it had fibrocystic disease, and the other because it had persistent vomiting, which was thought to be due to a hiatus hernia.

The Mother

The competence of the mother was graded subjectively. Mothers in category A were deemed intelligent, sensible, highly competent in general mothercraft, and clean to the point of fastidiousness. Those assessed as B—the majority—were of reasonable competence and showed average common sense; they were conscientious if at times a little slapdash. The remainder, graded as C, varied from the careless and grubby to the frankly incompetent, stupid, and slovenly.

The living conditions and standard of cooking facilities available are not graded, since no relationships were found between these factors and variation in the composition of milk samples. Milk samples were stored in a refrigerator within two hours of collection, and were analysed within twenty-four hours. Fat was estimated by the Gerber method (British Standard specification 696: 1936), lactose by a modification of the chloramine-T method of Hinton and Macara (1927), and nitrogen by a micro-Kjeldahl method. Sucrose was estimated as fructose by an adaption of the method of Roe et al. (1949). When glucose had been added to the feed, all reducing sugars were estimated together by Nelson's (1944) method. Non-protein nitrogen was estimated in milk serum prepared by precipitating fat and protein with dialysed iron. Protein was calculated by multiplying protein nitrogen by 6·38.

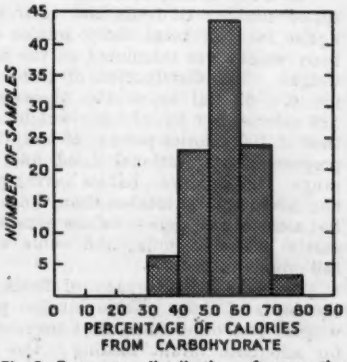

Fig. 5—Frequency distribution of proportion of total calories derived from carbohydrate in 100 samples of feeds.

Results

Of the 100 samples 73 had been prepared from National dried milk (34 from full-cream milk, 27 from partly skimmed milk, and 12 from a mixture of the two), 23 from cow's whole milk, and the remaining 4 from proprietary dried milks.

Extra carbohydrate was usually added in the form of ordinary cane-sugar, but in 5 instances it consisted of brown sugar, in 1 glucose, and in 1 glucose syrup. In 3 of the 4 feeds made from proprietary milks no carbohydrate had been added. In 2 cases barley-water was used in place of plain water to make up the feed. In 5 sodium citrate had been added, and in several powdered biscuit or rusk was present.

Figs. 1–4 show the frequency distributions of the values for the fat, protein, lactose, and sucrose contents

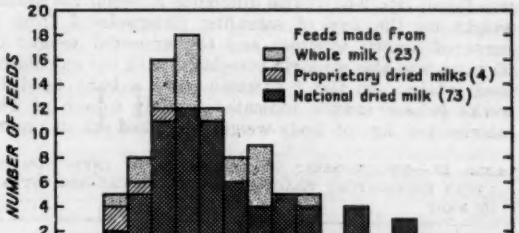

Fig. 6—Distribution of calorie intake per kg. of body-weight daily of 100 infants, calculated from analysis of a sample of their feeds and from their expected weight at the day of sampling.

TABLE II—RELATIONSHIP OF BABY'S WELL-BEING TO ITS ESTIMATED CALORIE INTAKE

Calories per kg. of "expected" body-weight daily	Good	Fair	Poor	Total
Less than 100 ..	19(40·4%)	17(36·2%)	11(23·4%)	47(100%)
100 or more ..	32(62·7%)	17(33·3%)	2(4%)	51(100%)
Total.. ..	51	34	13	98

of these feeds, and fig. 5 illustrates the distribution of the percentage of total calories derived from carbohydrates.

The daily intake of calories was calculated from the stated number of feeds and their reputed size, and a figure for the total daily intake of calories per kg. body-weight was calculated on the basis of the expected weight. The distribution of these values is shown in fig. 6. 69 fell below the theoretical requirement of 120 calories per kg. of body-weight daily, and 49 below that of 100 calories per kg. of body-weight daily. Feeds prepared from National dried milk covered the entire range. On the whole, babies having partly skimmed milk had lower calorie intakes than those on full-cream milk, but some of the highest values were reached by the use of partly skimmed milk, and some of the poorest with full-cream milk.

Although the adequacy of feeds is judged here on the basis of daily calorie intakes per kg. of expected weight, two other important requirements must be met for adequate infant feeding: the total daily intakes of water and protein.

Opinions differ about the daily requirements of water for the young baby. Holt and McIntosh (1939) state that 125–140 ml. per kg. of body-weight "may be taken as optimal and it undoubtedly provides a liberal margin of safety," and Jeans and Marriott (1947) state that 95–150 ml. per kg. of body-weight is required, depending largely on the environmental temperature. In this series only 4 infants were receiving less than 110 ml. per kg. of body-weight daily, and only 1 less than 95 ml.

The daily requirement of protein, when cow's milk is used, is usually stated to be about 3 g. per kg. of body-weight (Clements 1949, Holt and McIntosh 1939). In 9 of the present cases this requirement was not reached. The deficiency was associated with a calculated calorie intake of 103 per kg. of body-weight daily in 1 case, but the remainder all occurred with very low calorie intakes, the lowest of 2·16 g. of protein per kg. of body-weight being associated with a daily calorie intake of only 67 per kg. (30 calories per lb.) of body-weight.

To obtain evidence that the single sample was representative of the baby's usual food intake, the daily gain in weight during the period in which the sample was taken was correlated with the calculated daily energy intake. Information was available for only 31 of the infants, but a correlation of high statistical significance was found ($P<0·01$). The difference between the actual weight on the day of sampling (interpolated from a curve of known weights) and the expected weight in 55 cases was also strongly correlated with the calculated food intake. In the 2 extreme cases a baby aged 11 weeks (whose sample indicated a daily intake of 180 calories per kg. of body-weight) weighed 43 oz. more than its expected weight, and a baby aged 10 weeks (with a calculated daily intake of 76 calories per kg. of body-weight) weighed 29 oz. less than its expected weight. Neither baby had had any specific illness.

TABLE III—RELATIONSHIP OF INCIDENCE OF INFECTION OF UPPER RESPIRATORY TRACT TO ESTIMATED CALORIE INTAKE OF BABY

Calories per kg. of "expected" body-weight daily	No illness	Illness	Total
Less than 100 ..	34 (72%)	13 (28%)	47 (100%)
100 or more ..	46 (90%)	5 (10%)	51 (100%)
Total.. ..	80	18	98

The relationship between the well-being and general health of the baby and its calculated calorie intake is shown in table II. Babies who thrived had a calorie intake obviously higher than that of babies who did not thrive. The difference between those with the lower intake and those with the higher intake is highly significant ($P<0·01$). It should be emphasised that the babies with exceptionally high intakes showed no ill effects. Of the 7 babies whose calculated calorie intakes were above 170 per kg. of body-weight daily, 5 were classified as in "good" and 2 as in "fair" health.

There is a widely held clinical impression that the malnourished child is particularly susceptible to infections of the respiratory tract. In this series 9 infants had one or more severe colds, 15 had bronchitis, and 3 had pneumonia within four weeks of the sampling. The relationship between these infections and the estimated calorie intake, shown in table III, is statistically significant ($P<0·025$). It might be argued that such factors as housing, overcrowding, and education of the parents are likely to be worse where the underfeeding is worst, and that these may be the major influences on the child's morbidity. On a criterion of a very crude measure of amenities no relationship could be shown between housing and type of infant feeding, and the better-educated parents were little better at avoiding poor feeding than the rest (see below). The relationship between calorie intake and respiratory infection was obvious in both the well-housed and the poorly-housed groups.

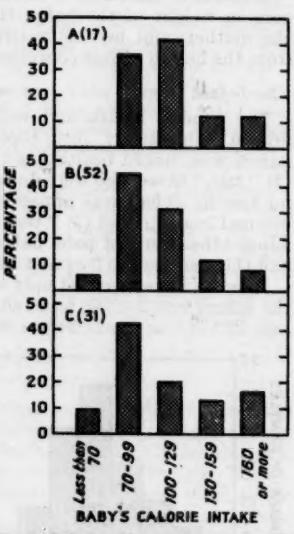

Fig. 7—Relationships between maternal competence and calorie intake of baby.

The incidence of disease was not related to any specific constituent of the diet, and it is notable that no digestive disturbances were observed even with the highest fat, protein, and sucrose contents. Only 2 infants had attacks of diarrhœa and vomiting, and these occurred on feeds of average composition giving 118 and 122 calories per kg. of body-weight daily.

It is commonly held that a high concentration of sucrose in the feed, by making the stools acid, causes sore buttocks. Our data slightly support this view, but many babies on very high sucrose intakes did not have sore buttocks. There were 9 instances of this condition, and the sucrose concentrations in the feeds of these babies were 3·65, 5·20, 6·15, 6·10, 2·70, 5·75, 5·25, 5·66, and 5·50 g. per 100 ml., none of which is excessively high.

It might be expected that the competence of the mother would be reflected in the efficiency with which she prepares her baby's feeds. Fig. 7 shows the relationship between the three "competence" groups and the calculated calorie intake of the baby. The mean calorie intakes are $113·2\pm29·6$, $107·7\pm31·5$, and $111·9\pm38·1$ for the A, B, and C groups respectively. The difference between the means are not statistically significant, but it is noteworthy that the scatter about the means increased

from group A to group C. Thus the highly competent mothers prepared feeds which are all within a relatively narrow range of calorie content and close to those recommended (table I).

The proportion of babies receiving less than an estimated 100 calories per kg. of body-weight daily increased as the competence of the mother diminished, but in the incompetent (C) group many babies get feeds of very high calorie value (fig. 7).

A similar picture appears as regards the quantity of sugar added to the feed. Again the A group most frequently give the recommended quantity, and the C group prepare feeds with a very wide range of sugar content.

Discussion

When milk mixtures are made up in the home with non-standard measures for water and sugar, and the term "a scoop of milk powder" is interpreted variously, differences of composition of prepared feeds are to be expected. The range of feed strength found in this series (30·5–114·9 calories per 100 ml. or 8·5–32·5 calories per oz.) is, however, extremely wide and well beyond what might be expected from the use of virtually standard instructions.

Broadly it can be concluded from these results that (1) there is an enormous variation in the calorie intake of young infants in Aberdeen; (2) the infants who are getting less than their theoretical requirements are subject to considerably more ill health than are the rest and are usually not thriving; and (3) those who are by ordinary standards being "overfed" are not only suffering no ill effects but are, in fact, flourishing.

The healthy infant seems to have a greater capacity for digesting and utilising food than is commonly supposed, and this has been emphasised in recent pædiatric writings—e.g., Holt and McIntosh (1939), Vining (1952), and Gough (1953)—hence any error in the preparation of a feed which gives the baby more than was intended is harmless. There is certainly no evidence that the young baby who is "overweight" suffers any handicap comparable to that of the obese adult. This is not true of mistakes made in the opposite direction, and undernutrition appears, in this community at least, to be common. Some reduction of infant morbidity might reasonably be expected to follow the elimination of undernutrition, and it is worth while examining the circumstances associated with underfeeding.

The mothers who prepare the feeds are not primarily at fault. It is true that the less competent mothers prepare more feeds of low calorie content than those who are more competent, but even the best group can commit the same errors. In this series 35% of the A mothers gave feeds which provided less than 100 calories per kg. of body-weight daily for the baby.

The primary reason for the high incidence of low calorie feeding seems to lie in the instruction given to mothers. This is of particular importance as regards National dried milk, which forms the major source of infant food today, but the same criticism applies in the case of the proprietary milks tested.

Recommended feeds should offer at least the generally agreed theoretical calorie requirements, and it seems a reasonable precaution to recommend feeds which will provide more than these requirements. For example, if National dried milk were to be reconstituted to whole milk (one scoop per ounce) and sugar added, the average baby would be given about 130 calories per kg. of body-weight daily. "Overfeeding" will do no harm, and the likelihood of underfeeding will be considerably reduced.

The labels on the tins of partly skimmed National dried milk state clearly that it "should not be used for babies except under medical advice." In Aberdeen the partly skimmed milk-powder is freely available and has been traditionally used for all artificially fed babies aged less than 1 month. It is apparently also used widely beyond this age. Vining (1952) states: "The feeding of healthy babies with a half-cream dried milk cannot be too strongly deprecated." If partly skimmed dried milk is intended for the special use of premature or ill babies it should be supplied only on prescription.

Summary

Artificial milk mixtures were prepared in the laboratory from National dried milk according to the instructions on the tin. Analysis of these feeds showed that they provided considerably less than the theoretical calorie requirements for the baby when partly skimmed milk was used, and barely sufficient when full-cream milk was used and the measures were packed tight with the powder.

A hundred samples of feeds prepared in Aberdeen homes were collected by health visitors. Analysis of these feeds indicated that 69 infants were receiving less than their theoretical daily requirements of 120 calories per kg. of "expected" body-weight, and 49 were receiving less than 100.

On the higher calorie intakes the babies gained more weight and were healthier than those on the low calorie intakes. There were no digestive disturbances or illness associated with the exceptionally high calorie intakes.

The more competent mothers tended to make feeds more nearly according to instructions than the others, but there was a considerable degree of underfeeding in all the groups.

It is suggested that the instructions issued to mothers for the preparation of artificial milk mixtures should be revised.

We are grateful to the health visitors who made the investigation possible, and to Prof. Dugald Baird and the staff of the midwifery department of the University of Aberdeen for help and advice.

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PATHOGENIC BACTERIA IN CHRONIC BRONCHITIS

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IN previous reports (May 1953a and b) evidence was presented that one or more potentially pathogenic bacteria could always be isolated from purulent sputum in chronic bronchitis. By far the most important of these pathogens were *Hæmophilus influenzæ* and the pneumococcus, and these two organisms were found with about the same frequency.

Further experience has led to slight modification of these conclusions. In particular it has been found that macroscopic "purulence" of a sputum is not necessarily due to the presence of neutrophil polymorphs, since in some sputa large numbers of eosinophils cause this appearance, and pathogens are usually absent from such specimens. In addition it now appears that the relative importance of *H. influenzæ* is greater than was previously supposed. The object of this report is to substantiate these conclusions.

TABLE I—EXAMPLES OF EOSINOPHIL CONTENT AND BACTERIOLOGICAL FINDINGS IN PATIENTS WHOSE SPUTA APPEARED TO CONTAIN PUS

Case no.	Clinical diagnosis	Sputum before therapy			Therapy	Sputum after therapy		
		Macroscopic appearance	Eosinophils %	Culture		Macroscopic appearance	Eosinophils %	Culture
1	Chr. bronchitis	Pus	0	*H. influenzæ*	Chlortetracycline	Mucus	0	No pathogens
2	Chr. bronchitis	Mucopus	1	*H. influenzæ*	Oxytetracycline	Mucus	0	No pathogens
3	Chr. bronchitis	Mucopus	17	*H. influenzæ*	Chloramphenicol	Sl. mucopus	99	No pathogens
4	Inf. asthma	Pus	60	*H. influenzæ*, pneumococcus	Oxytetracycline	Sl. mucopus	90	No pathogens
5	Inf. asthma	Mucopus	80	*H. influenzæ*	Oxytetracycline	Sl. mucopus	95	No pathogens
6	Inf. asthma	Mucopus	98	Pneumococcus	Penicillin	Mucopus	98	No pathogens
7	Inf. asthma	Mucopus	98	No pathogens	Oxytetracycline	Mucopus	98	No pathogens
8	Inf. asthma	Mucopus	95	No pathogens	None	..	..	..
9	Inf. asthma	Sl. mucopus	98	No pathogens	None	..	..	..

Materials and Methods

Patients Investigated

All the patients were attending the Brompton Hospital as either inpatients or outpatients. Two clinical groups were recognised—"chronic bronchitics" and "infected asthmatics." Both groups of patients had cough, sputum, and some dyspnœa, but they were only diagnosed as asthmatics if they gave a clear history of paroxysmal dyspnœa. The asthmatics were considered clinically to be "infected" if their sputum appeared macroscopically to contain pus.

None of the patients had an acute exacerbation of bronchitis. Their temperatures were normal, and they felt well apart from the incapacity caused by their dyspnœa, cough, and sputum.

Bacteriological Examination of Sputum

Cultures of sputum were made either by the "five-culture method" (May 1953a) or by a single culture from sputum liquefied by pancreatin (Rawlins 1953). These two methods have been shown to give comparable results.

Primary cultures from sputum were made on blood-agar and incubated aerobically. Subcultures on other media were made where necessary for appropriate diagnostic tests.

Cytological Examination of Sputum

Differential counts of the cells in sputum specimens were made after liquefaction by pancreatin. The technique is described by Rawlins (1954).

Results

EOSINOPHIL "PUS" IN SPUTUM

Sixty-eight specimens of macroscopically purulent or mucopurulent sputum, in which the "pus" was composed largely of eosinophils, were examined from 19 patients. The clinical diagnosis of 14 of these was infected asthma; the remainder were chronic bronchitics. Examples of the macroscopic, microscopic, and cultural findings in the sputa of some of these patients are shown in table I. The response to chemotherapy of some of them is also shown, and examples of the findings from bronchitics with true neutrophil pus in their sputa are given for comparison.

Diminution of the macroscopic purulence of the sputum after therapy was observed only if neutrophils were significantly numerous in the pus (table I, cases 1–5). Patients whose sputum contained significant numbers of both neutrophils and eosinophils benefited only to the extent corresponding to the reduction of cell-count by removal of the neutrophils (table I, cases 3–5). The sputum of such patients after therapy often still appeared macroscopically "mucopurulent." The sputum of case 6 (table I) appeared to be mucopurulent, and pneumococci were isolated from it. The eradication of these organisms by penicillin, however, caused no change in the purulence of this sputum, since almost all the cells in it were eosinophils.

Table I indicates also that specimens of sputum in which the cellular element consisted almost entirely of eosinophils seldom appeared to be very purulent macroscopically. Similar observations were made on other sputa not recorded in the table. Thick purulent sputa nearly always contained many neutrophils, whereas specimens containing pure eosinophil "pus" were normally classified macroscopically as "mucopurulent." These specimens most commonly appeared to be mucoid sputa with small plugs of "pus" scattered more or less heavily throughout them.

INCIDENCE OF *H. influenzæ* AND PNEUMOCOCCI IN SPUTUM

Purulent Sputum

Table II shows the incidence over a period of two years of *H. influenzæ* and pneumococci in 85 patients clinically diagnosed as "chronic bronchitics" and with purulent or mucopurulent sputum. Patients whose "pus" was composed mainly of eosinophils were excluded. During the two years in which these observations were made the frequency of isolation of *H. influenzæ* from purulent sputum increased from 24 to 90%, and that of pneumococci decreased from 71 to 20%. Only one important technical change took place during the period—i.e., an increase in the frequency with which more than one sputum sample was examined from each patient. The effect of this change would be to increase the efficiency with which pathogenic bacteria were isolated (May 1953a), and that this was in fact so is shown in table II by the increase over the first eighteen months in the number of patients in whom a "pathogen" (either *H. influenzæ* or a pneumococcus or both organisms together) could be found. This increase ran parallel to the increase in the number of patients from whom more than one specimen of sputum was examined. Thus, in the summer of 1952, when more than one specimen was examined from only 35% of the patients with purulent sputum, either *H. influenzæ* or pneumococci or both

TABLE II—INCIDENCE OF *H. influenzæ* AND PNEUMOCOCCI IN 85 CHRONIC BRONCHITICS WITH PURULENT OR MUCOPURULENT SPUTUM BEFORE CHEMOTHERAPY

—	Summer 1952	Winter 1952–53	Summer 1953	Winter 1953–54
Total no. of patients..	17	25	13	30
No. of patients from whom more than one specimen was examined	6 (35%)	19 (76%)	11 (85%)	21 (70%)
No. of patients from whom a "pathogen" was isolated..	14 (82%)	24 (96%)	13 (100%)	29 (97%)
No. of patients from whom *H. influenzæ* was isolated ..	4 (24%)	15 (60%)	11 (85%)	27 (90%)
No. of patients from whom pneumococci were isolated ..	12 (71%)	18 (72%)	3 (23%)	6 (20%)

Summer, April–September inclusive.
Winter, October–March inclusive.
Pathogen, either *H. influenzæ* or pneumococcus.

together were found in 82%. In contrast, a year later, when multiple specimens were examined from 85% of the patients, one or both organisms were found in every instance.

If the incidence of pathogenic bacteria in sputum is constant from year to year, an increase in the frequency of their isolation should result from increased efficiency of cultural methods. The frequency of isolation of *H. influenzæ* did increase in this way, but the number of pneumococci isolated decreased considerably (table II). This decrease cannot be explained by any technical alterations, and one must conclude that pneumococci were really more prevalent in 1952 than in 1953.

The apparent increase in the incidence of *H. influenzæ* is in accord with the increased efficiency of sputum examinations. Table III was compiled to determine whether this was the only cause for the increase. This table shows the incidence of *H. influenzæ* and pneumococci in single specimens of sputum only. In compiling it, only the first specimen from each patient was considered; hence the complicating factor of variation in the number of specimens examined was eliminated. It will now be seen that the proportion of patients from whom a "pathogen" was isolated remained constant at about 85%. Changes in the apparent incidence of *H. influenzæ* caused by increased cultural efficiency had therefore been removed, but the incidence of the organism still

TABLE III—INCIDENCE OF *H. influenzæ* AND PNEUMOCOCCI IN FIRST SPECIMEN OF PURULENT OR MUCOPURULENT SPUTUM FROM EACH OF 85 CHRONIC BRONCHITICS BEFORE CHEMOTHERAPY

—	Summer 1952	Winter 1952–53	Summer 1953	Winter 1953–54
Total no. of patients..	17	25	13	30
No. of patients from whom a "pathogen" was isolated ..	14 (82%)	22 (88%)	11 (85%)	25 (83%)
No. of patients from whom *H. influenzæ* was isolated ..	4 (24%)	11 (44%)	8 (62%)	24 (80%)
No. of patients from whom pneumococci were isolated ..	12 (71%)	17 (68%)	3 (23%)	4 (13%)

Summer, April–September inclusive.
Winter, October–March inclusive.
Pathogen, either *H. influenzæ* or pneumococcus.

increased during the two-year study. The interpretation of this finding is discussed below.

Mucoid Sputum

The frequency of isolation of pathogens from mucoid sputum in this series (table IV) is dominated by the high carrier-rate for pneumococci in 1952. In 1953, when cultural efficiency was highest, the frequency of isolation of pathogens was lowest, and pneumococci were almost absent, indicating once again that these organisms must have been behaving almost in epidemic manner in 1952. The isolation of *H. influenzæ* varied to some extent with the number of specimens examined from each patient, but the figures for single specimens only (table V) show a slight increase throughout the period. These figures are extremely small, however, and the increase may well have been due to chance.

OTHER POTENTIAL PATHOGENS IN SPUTUM

The incidence of potential pathogens other than *H. influenzæ* and pneumococci has not been analysed in this report. *Staphylococcus aureus* and coliform bacilli have been found fairly often, but no evidence for their pathogenicity in chronic bronchitis has been obtained; we have insufficient data to assess their rôle in acute exacerbations. The same has been true of occasional appearances of Friedländer's bacillus, and no instance of group-A streptococcal infection has yet been seen.

TABLE IV—INCIDENCE OF *H. influenzæ* AND PNEUMOCOCCI IN 62 CHRONIC BRONCHITICS WITH MUCOID SPUTUM BEFORE CHEMOTHERAPY

—	Summer 1952	Winter 1952–53	Summer 1953	Winter 1953–54
Total no. of patients..	21	14	11	16
No. of patients from whom more than one specimen was examined	0 (0%)	13 (93%)	11 (100%)	13 (79%)
No. of patients from whom a "pathogen" was isolated ..	10 (48%)	5 (36%)	1 (9%)	3 (19%)
No. of patients from whom *H. influenzæ* was isolated ..	1 (5%)	2 (14%)	1 (9%)	2 (13%)
No. of patients from whom pneumococci were isolated ..	9 (43%)	4 (29%)	0 (0%)	2 (13%)

Summer, April–September inclusive.
Winter, October–March inclusive.
Pathogen, either *H. influenzæ* or pneumococcus.

In two patients *Pseudomonas pyocyanea* accompanied *H. influenzæ*. The sputum became mucoid when *H. influenzæ* was suppressed, even though *Ps. pyocyanea* remained.

Discussion

The primary object of the work described in this and in earlier reports was to obtain a sound and rational basis for the use of antibacterial drugs in chronic bronchitis. The problem may best be considered under two headings: (1) recognition of the presence of an infection that is likely to respond to antibacterial treatment; and (2) determination of the organisms responsible for the infection and hence of the chemotherapeutic agents most likely to be of value.

The most obvious index of the existence of an infection in the bronchial tree is the presence of pus in the sputum. It has been stated (May 1953b) that one or more potentially pathogenic bacteria can always be isolated from patients with either purulent or mucopurulent sputum, and that this sputum can be rendered mucoid by appropriate chemotherapy. Recognition of the fact that large numbers of eosinophils can cause sputum to appear macroscopically to contain pus, and that such sputa are unaltered by antibacterial therapy (Helm et al. 1954), indicated the need for cytological examination of sputum to determine the proportions of eosinophils and neutrophils constituting the "pus." This examination is now practised routinely in this laboratory. The technique is described by Rawlins (1954). Clinical confusion between neutrophil and eosinophil "pus" is most likely in patients known to have an asthmatic background, but usually the sputum from such a patient, if it consists of mucus with small plugs of "pus" scattered fairly evenly throughout it, is likely to contain a high proportion of

TABLE V—INCIDENCE OF *H. influenzæ* AND PNEUMOCOCCI IN FIRST SPECIMEN OF MUCOID SPUTUM FROM EACH OF 62 CHRONIC BRONCHITICS BEFORE CHEMOTHERAPY

—	Summer 1952	Winter 1952–53	Summer 1953	Winter 1953–54
Total no. of patients ..	21	14	11	16
No. of patients from whom a "pathogen" was isolated.. ..	10 (48%)	3 (21%)	1 (9%)	3 (19%)
No. of patients from whom *H. influenzæ* was isolated.. ..	1 (5%)	1 (7%)	1 (9%)	2 (13%)
No. of patients from whom pneumococci were isolated ..	9 (43%)	3 (21%)	0 (0%)	2 (13%)

Summer, April–September inclusive.
Winter, October–March inclusive.
Pathogen, either *H. influenzæ* or pneumococcus.

eosinophils. Unfortunately no general rule can be applied, for sometimes this appearance may result from true neutrophil pus in sputum, and, in addition, eosinophil "pus" may be found in chronic bronchitics who have not previously been supposed to have any underlying allergy (see table I, case 3).

There are many reasons why the indiscriminate use of antibiotics is undesirable (*Lancet* 1954), and in respiratory infections, if pus in the sputum is to be used as an index of the need for antibacterial treatment, the distinction between neutrophil and eosinophil "pus" is clearly important. The best safeguard seems to be routine cytological examination of sputum before therapy. This, however, is not often practicable; hence the possibility that the "pus" is not the result of infection should always be borne in mind, especially in patients believed to be "infected asthmatics," so that unnecessary chemotherapy is not prolonged in the face of complete failure of response.

The contention that one or more pathogenic bacteria can always be found in sputum containing pus has been amply confirmed by the results reported here, once the possible confusion caused by eosinophil "pus" has been excluded and the importance of examining more than one specimen of sputum from each patient has been recognised. This is apparent from table II. About equal importance was assigned to *H. influenzæ* and the pneumococcus in earlier reports (May 1953a and b), but more recent work has shown that *H. influenzæ* is now isolated about four times as often as the pneumococcus. Mulder et al. (1952) reported that *H. influenzæ* could be isolated from the sputum of 84% of patients with chronic mucopurulent bronchitis usually associated with bronchiectasis. This figure is about the same as that found in this laboratory during the past year (table II), and the question arises whether this organism is always present in 80–90% of patients with purulent sputum or whether its incidence fluctuates from year to year. Arguments have already been advanced for supposing that pneumococci were more prevalent among the patients attending the Brompton Hospital in 1952 than in 1953, because this organism was isolated less often in 1953, although sputum examinations were then more efficient (table II). The increasing frequency of isolation of *H. influenzæ* ran parallel to increasing cultural efficiency; but, even when single specimens of sputum only were considered, there was still an apparent increase in the incidence of this organism (table III). There seem to be two possible explanations for this increase—it may be a real increase in the incidence of *H. influenzæ*, or the true incidence of *H. influenzæ* may have been masked in 1952 by the abundance of pneumococci. The second of these possibilities seems likely to be the correct one. Table III shows that the frequency of isolation of a "pathogen" (either *H. influenzæ* or a pneumococcus or both together) remained constant when only single specimens of sputum were examined—i.e., constant cultural efficiency. The two organisms were clearly more or less complementary to each other; and, when the incidence of pneumococci decreased, that of *H. influenzæ* increased proportionately. This suggests that the prevalent pneumococcal infections of 1952 may have masked underlying *H. influenzæ* infections, and in fact in 4 of 6 patients treated with penicillin for apparently pure pneumococcal infections *H. influenzæ* was subsequently revealed.

Proof that *H. influenzæ* has a constant incidence in purulent bronchitis cannot be obtained from the figures cited here, but the evidence suggests that this organism is present in 80–90% of cases, and this figure is in complete accord with the experience of Mulder et al. (1952). It also agrees closely with the universal finding of *H. influenzæ* in the sputum of children with bronchiectasis (Franklin and Garrod 1953). From the standpoint of treatment this is an important conclusion, for, in the absence of bacteriological facilities, it is important to know what organisms are the most probable infecting agents. The mere presence of an infection does not by any means indicate that chemotherapy is essential or even advisable, because other factors must be taken into account (May 1953b); but, if antibiotic treatment of a patient with chronic bronchitis without an acute exacerbation is considered necessary, and if it must be given "blind," then the 80–90% chance that *H. influenzæ* is the infecting organism should be the main factor influencing the choice and dosage of the antibiotic used.

As regards patients with mucoid sputum the more recent observations indicate once again that pneumococci are now much less prevalent than they were in 1952. The figures in table V suggest that there may have been a slight rise in the carrier-rate of *H. influenzæ* during the last two years, but the figures are too small for us to conclude that the incidence of this organism has really increased. Tables IV and V suggest that at present 10–20% of chronic bronchitics with mucoid sputum are carriers of either *H. influenzæ* or pneumococci, the lower figure representing the summer months, and the higher one the winter.

Summary

The incidence of *H. influenzæ* and pneumococci in the sputum of patients with chronic bronchitis at the Brompton Hospital, London, over the last two years is described.

Pneumococci were considerably more prevalent in 1952 than they are now.

The incidence of *H. influenzæ*, on the other hand, has probably remained constant. This organism is present in 80–90% of chronic bronchitics with purulent sputum.

The importance of cytological examination of sputum is emphasised. In some patients, especially those known to have an asthmatic background, large numbers of eosinophils can make the sputum appear macroscopically "mucopurulent." This may lead to difficulty in diagnosing the infection if the nature of the "pus" is not recognised.

I have great pleasure in thanking Dr. Neville Oswald and Dr. J. L. Livingstone for allowing me to investigate their patients, and Mr. G. A. Rawlins for his continued invaluable technical assistance.

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RED HALF-MOONS IN CARDIAC FAILURE

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THE normal half-moons of the finger-nails have a uniform whitish or ground-glass appearance. This report concerns 23 patients in whom the half-moons were found to be suffused or red; 14 of these patients were suffering from cardiac failure. The anatomy of the normal half-moon is also discussed.

The Normal Half-moon

Superficial examination suggests that the normal half-moon is colourless; and this impression is aided by the contrasting redness of the adjacent nail and skin. Closer inspection shows that the half-moon has a faint pink flush, which can be removed by pressure. This faint but definite flush extends throughout the half-moon, except for a band along its distal margin about 1 mm.

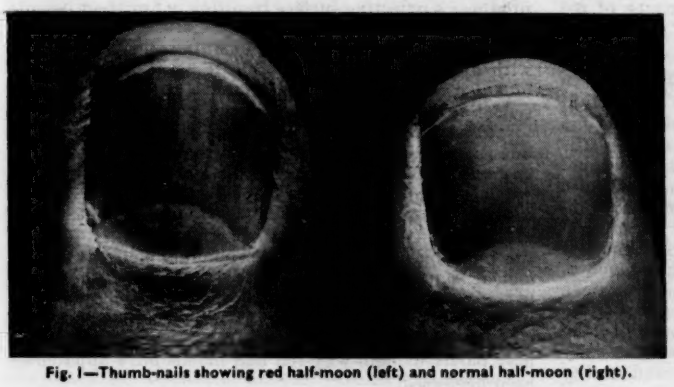

Fig. 1—Thumb-nails showing red half-moon (left) and normal half-moon (right).

wide. This distal white band is not dead white, but is much paler than the rest of the half-moon. These appearances are best seen in bright sunlight with a hand lens, but they may also be observed naked eye.

The half-moon is usually well developed in the thumb-nail but is often insignificant in the finger-nails; and in hospital patients the half-moon of the thumb-nail is completely covered by cuticle in about 12% and more than half covered in another 12%. The following remarks refer chiefly to thumb-nails with well-developed half-moons.

Red Half-moons

Appearance

In certain patients, the half-moons were suffused, so that they appeared red on examination (fig. 1). This redness varied both in degree and in extent.

The redness was in every case readily seen at a distance. It ranged from just noticeable redness (1+), to a vivid colour equal to that of the rest of the nail when blood was squeezed into the terminal phalanx (4+). Intermediate intensities were graded 2+ and 3+. The redness was nearly always most intense in the proximal portion of the half-moon and faded distally. In several instances it was uniform, but it was never more intense distally than proximally. Whereas the redness of the nail distal to the half-moon could be increased by squeezing the blood into the terminal phalanx, the intensity of the red half-moons was not affected by this manœuvre.

The extent of the redness varied from a small area, about 1 × 3 mm., adjacent to the nailfold, to the whole area of the half-moon, except for the distal white band. When the red zone extended as far as the distal white band, it had a regular distal margin; in one striking instance the distal white band was all that remained of the half-moon, for the colour proximal to the band was the same as the rest of the nail. When the red zone stopped short of the distal white band, its distal margin was usually irregular and marked by a series of longitudinal streaks. The size of the red zone naturally depended on the size of the half-moon.

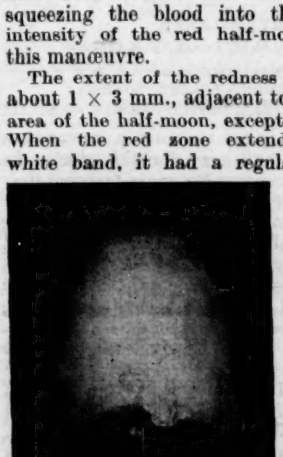

Fig. 2—Appearance of normal dry excised nail on transillumination, showing translucency of half-moon area.

In 1 patient, the whole half-moon including the distal white band was affected, and it was only just possible to detect the faint outline of the half-moon (case 10). The patient confirmed that he had once had large, well-defined, and normally pale half-moons, and he was surprised to find that they had become almost obliterated.

Well-developed red half-moons were seen in the fingers as well as the thumbs in only 2 patients (cases 3 and 10).

In 1 patient the redness was greater in the left thumb-nail than in the right; he was right-handed.

In certain conditions, the nail-bed distal to the half-moon becomes opaque, giving the nail a white appearance (Terry 1954). In 3 instances, red half-moons have been observed in association with such white nails—a striking reversal of the normal colouring of the nails (cases 7, 11, and 20).

Ætiology

Red half-moons were observed in 23 patients, of whom 14 were suffering from cardiac failure. Congestive heart-failure was, or had been, present in 10 of these patients, 3 had coronary thrombosis, and 1 had angina pectoris. 4 patients had advanced pulmonary disease with severe dyspnœa on exertion (cases 15–18). The remainder had disorders which were either primarily systemic, such as Hodgkin's disease, or accompanied by systemic effects, such as hepatic cirrhosis. On the other hand, red half-moons have not been observed either in patients with non-systemic disorders such as hernia and peptic ulcer, or in a group of 150 healthy young women.

FINDINGS IN 23 PATIENTS WITH RED HALF-MOONS

Case no.	Sex	Age	Diagnosis	Red half-moons		
				Intensity	Extent	Distal Margin
1	M	72	Hypertensive heart-disease	3+	3/4	Irregular
2	M	60	,, ,,	3+	1/4	,,
3	M	64	,, ,,	4+	1/2	Regular
4	M	65	,, ,,	4–3+	3/4	,,
5	M	53	,, ,,	2+	3/4	,,
6	M	67	,, ,,	3+	3/4	,,
7	M	72	Coronary thrombosis	3+	1/2	Irregular
8	M	51	,, ,,	2+	1/4	,,
9	M	55	,, ,,	2+	1/4	,,
10	M	61	Angina pectoris, Myeloid leukæmia	3+	1	Regular
11	M	56	Rheumatic heart-disease	4+	3/4	Irregular
12	F	68	,, ,,	2+	1/2	,,
13	M	69	Arteriosclerotic heart-disease	4+	3/4	,,
14	M	40	Thyrotoxic heart-disease	4+	3/4	,,
15	M	47	Fibroid phthisis	3+	3/4	,,
16	M	45	,, ,,	2+	3/4	Regular
17	M	64	Fibroid phthisis, hypertension	4–2+	3/4	,,
18	M	57	Chronic bronchitis, emphysema	4–3+	3/4	,,
19	M	67	Polycythæmia vera	3+	1/4	Irregular
20	M	75	Lymphoid follicular reticulosis	3+	1/2	,,
21	F	74	Hodgkin's disease, hypertension	2+	3/4	Regular
22	M	65	Malnutrition	4+	3/4	,,
23	F	64	Hepatic cirrhosis	2+	1/2	,,

Intensity: 1+ redness just noticeable; 2+ moderate, easily detectable; 3+ very striking; 4+ maximal—i.e., equal to that of rest of nail. When two grades of intensity are given, the greater intensity refers to the proximal portion and the lesser to the distal portion of the red area.
Extent: The fraction refers to the proximal fraction of the half-moon involved by the redness.

Age may play some part. Red half-moons have not been found in young patients with chronic congestive heart-failure. The youngest patient affected was aged 40.

Only 3 women have been seen with red half-moons, but the large majority of patients examined were male.

These and other details of the 23 patients with red half-moons are given in the accompanying table.

Other Factors

It is not yet possible to discuss the incidence of red half-moons, except to say that they are by no means rare. Attention is now being given to this aspect, and

also to the evolution and prognostic significance of red half-moons.

Anatomy

Normal Half-moons

The dry excised nail shows no whitish half-moon. In fact, by direct light the whitest part of the nail is that part distal to the half-moon. Moreover, transillumination of the dried excised nail shows that the area of the half-moon is *more* translucent than the rest of the nail (fig. 2). It is thus clear that the ground-glass appearance of the normal half-moon is due, not to any opacity in the nail itself, but rather to conditions under the nail.

When the undersurface of the dry excised nail is examined, it is seen that the area of the half-moon is smooth and shiny, whereas the rest of the undersurface has a mat appearance. This mat surface appears to be due to a "membrane" which is firmly adherent to the nail. The ragged edges of this membrane are easily seen at the distal margin of the half-moon, and at the distal limit of the nail-bed.

This membrane appears to be the superficial layer of the nail-bed; and, in my opinion, its adhesion to the nail is responsible for the redness or otherwise of the nail. Where it is firmly adherent to the nail, the redness of the underlying vascular connective tissue is easily seen through the nail in vivo; but in the dry excised nail, it forms a reflecting surface, which makes the nail whiter and less translucent. In the region of the half-moon, however, this membrane is loosely adherent to the nail with the formation, in vivo, of a reflecting surface and thus *apparent* opacity of the half-moon area; while, in the dry excised nail, it is absent from the half-moon area, and the clear, translucent nature of the half-moon area can then be seen.

Red Half-moons

It has not yet been possible to examine any nails removed from patients with red half-moons. If the above explanation of the normal half-moon is correct, however, it follows that red half-moons probably result from adhesion of the superficial layer of the nail-bed to the nail in this area.

Discussion

The association of red half-moons with cardiac failure was most clearly indicated by case 14. This man had thyrotoxic heart-failure with auricular fibrillation; and he was quite certain that his well-developed half-moons had been previously normal and had become reddened at about the time he began to experience breathlessness and irregular palpitations. The presence of red half-moons in 13 other patients with cardiac failure and in 4 patients with embarrassed pulmonary circulations emphasises the significance of cardiovascular disease.

The occurrence of red half-moons in patients with disorders not primarily affecting the cardiovascular system indicates that factors other than myocardial function may be involved. It is possible that they result from local circulatory changes initiated in unknown fashion by systemic disorders. It is interesting to note that circulatory changes occur in the hands in a variety of systemic conditions; palmar erythema is found in pregnancy, pulmonary tuberculosis, rheumatoid arthritis, congestive heart-failure, deficiency states, and cirrhosis; the red swollen hands of erythromelalgia are seen in hypertension, polycythæmia vera, diabetes mellitus, gout, rheumatoid arthritis, and thromboangiitis obliterans; and clubbing of the fingers is associated with a long list of cardiac, pulmonary, and hepatic disorders.

Whatever the correct explanation, it is worthy of note that red half-moons have not been observed in a healthy person.

The anatomy of the half-moon has been little investigated and remains obscure. Burrows (1919) concluded from his studies that the matrix is less firmly adherent to the underlying vascular connective tissue in the region of the half-moon than elsewhere; and that this produces a reflecting surface resulting in apparent opacity of the half-moon. Pardo-Costello (1936), in his book devoted to the nails and their disorders, quotes this view with apparent approval. While I agree that the half-moon owes its white appearance to an underlying reflecting surface and not to any opacity of the nail, my observations do not support Burrows's explanation, but suggest rather that the reflecting surface is between the area of the half-moon and the matrix.

I can find no reference to red half-moons in the medical literature: this omission is curious for they are often very striking. Silverman and Littman (1953) give the most recent account of the manual signs of cardiological significance. They list 41 such signs, of which 9 are in the nails, but they do not mention red half-moons. Their comment that "the hand as a source of information is so obvious that it may be neglected" may partly explain why red half-moons have apparently been neglected.

Summary

The half-moons of the nails, normally ground-glass in appearance, may become suffused or reddened. Such red half-moons have been observed in 23 patients, of whom 14 were suffering from cardiac failure.

Study of excised nails suggests that the normal half-moon results from the formation of a light-reflecting surface between the nail and the nail-bed, which are less firmly adherent in the half-moon area than elsewhere. Red half-moons presumably result from abnormal adhesion of the nail-bed to the nail.

Red half-moons are apparently rare in healthy persons, and their detection may therefore be of some importance.

I wish to thank the physicians and surgeons of St. Bartholomew's Hospital and of the Dreadnought Seamen's Hospital, who permitted me to examine their patients; Mr. C. F. Noon, for providing me with amputated fingers and fingernails; and the department of medical photography, St. Bartholomew's Hospital, for the illustrations.

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LOCAL TETANUS

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ALTHOUGH local tetanus is not uncommon in war-time it is rare in civilian life and may for this reason be mismanaged, particularly since some of its features may not be as well known as the more usual type.

Cumston (1919) has pointed out the usually long incubation period—generally a month or longer, but occasionally symptoms may appear after only a few days.

Local tetanus may present in one of three forms: (1) purely local; (2) local but later becoming general; and (3) primarily general becoming secondarily localised. "Local" is used here to mean purely local, with no general manifestations.

The mortality of local tetanus is very low—1% according to Cumston (1919). It is difficult to understand why death should occur at all in purely local tetanus, unless the respiratory muscles are involved; it is presumably due to causes other than the tetanus.

Local tetanus arises when the patient has enough tetanus antitoxin present in his blood-stream to neutralise circulating toxin but insufficient to prevent local accumulation of toxin in the motor end-plates in or near the wound. The toxin is thought to be absorbed from the motor end-plates both locally and through the general

circulation and to spread proximally within the nerve-sheath or along the axons to reach the anterior-horn cells, where it is finally "fixed" and rendered inaccessible to antitoxin.

Case-report

A railway porter, aged 22, was admitted to hospital on June 30, 1952, having been transferred from a nearby accident unit to which he had been admitted the previous day with a severe laceration of the left buttock, sustained when he had fallen about 30 ft. off the bank of a river, in which he had been bathing, on to "a sharp piece of rock or stick." Exploration at the accident unit had revealed a very irregular dirty wound in the lower half of the left buttock extending, very deeply upwards, with much damage to muscles and considerable bleeding. Débridement was done and bleeding controlled with gauze packing, over which the skin had been almost completely closed. Antitetanic serum, penicillin, and streptomycin were given. Next day the patient's temperature was 103°F and pulse-rate 120, and he had lower abdominal pain and vomiting. Because of these developments an abdominal injury was suspected and the patient was transferred.

On examination he looked pale and toxic, with temperature 103°F and pulse-rate 120. The lower part of his abdomen was tender and rigid, and he had much pain in the region of the wound. Examination per rectum was impossible owing to local pain. The patient had voided 26 oz. of clear urine immediately before the examination, and his bowels had acted twelve hours earlier. Radiography showed no radio-opaque foreign body or bony lesion in the pelvis or in the lumbar spine, and no free gas was visible in the abdomen. A pelvic hæmatoma with peritonitis due to a perforating injury of the pelvic floor was provisionally diagnosed.

Operation.—The wound was opened up and the packing removed. The previous findings were confirmed; the wound extended upwards towards the greater sciatic notch, but its upper limit could not be defined. It was irrigated with hydrogen-peroxide solution and saline solution, insufflated with penicillin-sulphonamide powder, and finally packed with acriflavine gauze to control the renewed bleeding; the edges of the wound were left open. Next laparotomy was done but revealed no abnormality beyond slight distension of the bladder.

Progress.—The packing was removed from the wound forty-eight hours later, and by July 8, 1952, the abdominal wound had healed by first intention and the buttock wound appeared to be healing rapidly and looked healthy. Penicillin 500,000 units initially, followed by 250,000 units six-hourly, was given from June 30 to July 7, 1952, during which time the patient's temperature stayed at 99°–100°F. On July 9, 1952, the patient complained of further pain and tenderness in his left buttock, and his temperature rose to 101°F. Sulphafurazole 4 g. initially, followed by 2 g. four-hourly, was given until July 17, 1952. On July 11, 1952, a deep subgluteal abscess was drained through a direct incision over the upper and inner quadrant of the left buttock, after which the patient's temperature fell to normal and remained so until his discharge from hospital. A pure culture of *Pseudomonas pyocyanea* was grown from the pus evacuated from the abscess. On July 12 the patient complained of vague pain and stiffness in the back of the left thigh, and on July 14—15 days from the time of injury—intermittent painful spasms began, extending from the left buttock down the back of the thigh and into the calf. The left knee was flexed to almost a right-angle, and the left foot was strongly plantar-flexed, with clawing of the toes. Attempts at either active or passive extension of the limb induced further painful spasm, with exaggeration of the flexion deformity already present. The left hamstrings and calf-muscles were in tonic contraction, and about every five minutes, or whenever the patient was disturbed, very painful clonic spasms were superimposed. The patient was afebrile, and the original buttock wound had almost healed, as had also the site of the drained abscess. There was neither trismus nor neck rigidity, and all the symptoms were confined to the left leg and to the distribution of the sciatic nerve.

Treatment of Local Tetanus.—After an uneventful test dose, antitetanic serum 200,000 was slowly injected intravenously, about ten minutes being taken over the injection. The patient was nursed alone in a room with padded doors and given intramuscular paraldehyde 5 ml. six-hourly for the first forty-eight hours, and then a mixture of potassium bromide gr. 30 and chloral gr. 30 was substituted and given as required to keep him drowsy—about once every 4–6 hours. Calcium lactate gr. 15 t.d.s. was given to reduce the risk of a serum reaction, and an attempt was made to minimise the spasm with mephenesin 1 g. ('Elixir Myanesin' one tablespoonful) given six-hourly. A liberal fluid intake with a high salt-content was given because of profuse sweating during the paroxysms. On July 15, 1952, the serum-calcium level was 10·6 mg. per 100 ml., and inorganic phosphates 4·4 mg. per 100 ml. By July 20, 1952, the clonic spasms had been reduced to perhaps one every half-hour, but the tonic spasm was unchanged. The mephenesin and calcium lactate were discontinued, but the mixture of potassium bromide and chloral was continued for another four days, at the end of which only very occasional mild clonic spasms were observed. By Aug. 1, 1952, all the clonic contractions had ceased, but tonic spasm was unchanged. Physiotherapy was begun, and the patient was encouraged to get about the ward as much as possible using crutches. No generalised spasm or trismus developed throughout this time. On Aug. 10, 1952, the tonic spasm had improved. The knee flexion was reduced to about 50°, plantar flexion at the ankle was less, and clawing of the toes was minimal. The buttock wound was well healed. However, during the next eight days, in spite of physiotherapy, there was no further improvement, but the patient was comfortable and could walk with his knee in flexion and foot in equinus. On Aug. 20, 1952, a plaster was applied from the upper thigh to the toes, and the limb was straightened by means of successive wedges to the plaster. Full correction was finally attained on Sept. 26, 1952, after which the plaster was removed. On Sept. 30, 1952, the patient was discharged walking normally.

Readmission.—The patient was readmitted on Dec. 15, 1952, with a week's history of a painful swelling in the left upper buttock. His temperature was 102°F, and an abscess was found below the gluteal muscles and at the same site as the previous abscess. This was incised, and again a pure culture of *Ps. pyocyanea* was grown from the pus. The patient was discharged symptom-free on Dec. 22, 1952.

Discussion

This case illustrates once again the ever present danger of tetanus in wounds. The type of wound was extremely conducive to anaerobic infection, which took place in spite of efforts to prevent it. The formation of two deep abscesses, the second after three months, is further evidence of the failure to obtain satisfactory débridement, which failure inevitably increased the risk of infection, both anaerobic and otherwise. No doubt the prophylactic antitetanic serum was sufficient to protect the patient against general tetanus but inadequate to prevent local tetanus probably because it could not reach the bacilli lying in a deep cavity among traumatised muscle and blood-clot.

This patient had been rejected for National Service and had never received tetanus toxoid, whose value in preventing or minimising tetanus was amply proved in the 1939–45 war in both the British and American forces, and is a strong argument in favour of the prophylactic immunisation of the civilian population.

Although the clinical features of local tetanus are pathognomic when the disease is completely established, local tetanus might be easily overlooked during the early days, when local stiffness in the region of the wound may be the only manifestation. Later the symptoms may be attributed to hysteria, which is known to simulate tetanus in some people.

It is common knowledge that the prognosis of tetanus depends on the length of the incubation period and on the length of the period of onset. If the incubation period is less than seven days, a fatal issue is usual, but the prognosis improves as the incubation period lengthens. Further, if the time which elapses between the first evidence of rigidity and the onset of reflex spasms is less than forty-eight hours, death is likely; but if four days or more elapse, recovery may be expected.

Although the prognosis with regard to life is always good with local tetanus, provided it *remains* local, there is no way of knowing this at the onset of the first symptoms; hence it appears vitally important to treat all

cases of local tetanus in the same way as cases of general tetanus.

The prognosis of local tetanus from the functional point of view is perhaps not so good as might be expected. Cumston (1919) pointed out that the tonic spasm sometimes persisted for several months and occasionally caused permanent deformity.

Ritson (1916) reported a case of local tetanus of the flexors of the arm in which spasm persisted fifty-three days, and Burnett and Tulloch (1916) reported a case of "paraplegic" tetanus in which spasm persisted in the left calf (the site of the wound) for more than five months; it was still present when the case was reported.

The reason for any residual deformity is not clear, and it is tempting to speculate that in some cases the anterior-horn cells are permanently damaged, although there has never been any histological evidence in support of this. The effect of the tetanus toxin on the anterior-horn cells is said to be purely physiological and unaccompanied by any structural changes. Even in fatal cases changes found in the central nervous system are confined to the cerebral cortex and range from slight degeneration of the nerves to demyelination and perivascular gliosis, but similar changes in the cord have never been found (Baker 1942). These cortical changes are usually regarded as being secondary rather than primary. Any permanent sequelæ of local tetanus—e.g., the contractures, atrophy, and trophic and vasomotor changes described by Cumston (1919)—are more likely to be due to mismanagement during the prolonged recovery period when the tonic spasm persists. Since this may last so long and disappear so slowly, it is easy to appreciate how joints may stiffen in faulty positions and muscles waste from disuse, unless active measures are taken to encourage full mobilisation as recovery takes place.

In the present case the tonic spasm persisted from July 14 to Sept. 26, 1952 (seventy-five days), and it is probably a fair assumption that it would have lasted much longer in the absence of active measures to correct it.

Summary

A case of local tetanus and its management are described.

Local tetanus should be treated like general tetanus.

The tonic spasm lasts a long time during the recovery period, and it is important to treat it.

My thanks are due to Mr. J. N. Wilson, F.R.C.S., for help in the management of this case.

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A NEUROLOGICAL CAUSE OF PAIN UNDER THE HEAD OF THE METATARSAL BONE OF THE BIG TOE*

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IN April, 1952, a staff nurse of this hospital bruised the soft tissues under the head of the metatarsal bone of the right great toe. The resultant swelling and broad tenderness resolved in six weeks, but a local severe tenderness persisted over the lateral sesamoid bone of the long flexor tendon. Insoles, metatarsal bars, and physiotherapy did not relieve the pain she endured when walking.

In September an operation for removal of the sesamoid bone was arranged. When the tendon was exposed, it was noticed that the digital nerve to the medial border of the great toe crossed the lateral sesamoid bone and the long flexor tendon. At the crossing the nerve was embedded in scar, and both nerve and scar were adherent to the tendon sheath. The nerve was freed from adhesions and the scarred portion of the tendon sheath excised. A longitudinal skin incision in the line of the long flexor tendon of the great toe healed perfectly. The patient has suffered no discomfort since.

In August, 1953, a man, aged 21, described similar symptoms which he had had for three years since he first injured his foot. The lateral sesamoid bone was acutely tender. There was a small area of reduced sensibility over the medial border of the big toe. Radiography showed multiple centres of ossification. His doctor had tried all forms of conservative treatment and suggested removal of the sesamoid bone.

At operation exactly the same conditions were present as were found in the foot of the staff nurse. Again freeing of the nerve and excision of the adjacent portion of the tendon sheath led to complete relief of pain. Sensation on the medial surface of the toe has also recovered.

The third case followed a motor accident. The history stated that the patient had injured the metatarsal joint of the big toe. Keller's operation had been done; but, when I examined him some six months later, he still complained of pain under the head of the metatarsal bone on walking. He was acutely tender over the lateral sesamoid bone, and there was a patch of diminished sensibility along the medial border of the big toe.

I feel that these cases should be recorded because it is possible for the sesamoid bones of the great toe to be removed when, instead, neurolysis of the digital nerve is all that is required, particularly since after this simple operation there is no loss of function, whereas after removal of the sesamoid bones there is residual disability. To my knowledge two famous fast bowlers have retired after excision of the sesamoid bone. They could no longer slap the foot down as seems necessary in the moment of delivering the ball.

The change in sensation in the distribution of the digital nerve suggests that scarring around the nerve is responsible for the symptoms. It is doubtful whether stenosing tendovaginitis of the long flexor sheath plays a part. There was no obvious constriction of the sheath or characteristic synovial effusion in these cases.

* Based on cases presented at a meeting of the South African Orthopædic Association at Cape Town in December, 1953.

ARTERIOVENOUS ANEURYSM IN THE SPLEEN

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IN the following case a patient with symptoms due to an aneurysm of the splenic artery, associated with gross enlargement of the spleen, has recovered after splenectomy and removal of the aneurysm.

A woman, aged 67, who had previously been healthy, lost her appetite and began to lose weight early in 1953. She noted lassitude from about August, 1953, and vomited partly digested food on three occasions. She was referred to me in December, 1953, for investigation for a suspected neoplasm.

On examination her general condition was good; she weighed 9 stone 13 lb. and appeared to have lost weight (her weight normally had been over 11 stone). She was a little anæmic and had only two teeth. An intra-abdominal mass palpable in the left hypochondrium was dull to percussion and moved with respiration. The liver was not enlarged, and there were no enlarged superficial veins. The patient was nervous, and did not easily relax during examination. Nothing else abnormal was detected on clinical examination.

Investigations.—A blood-count showed 4,300,000 red cells per c.mm., colour-index 0·77, 4800 white cells per c.mm. (differential count normal), and Hb 67% (9·7 g. per 100 ml.). Radiography after a barium meal showed only displacement

of the stomach and the splenic flexure of the colon to the right, excluding the possibility of a massive gastric neoplasm and indicating that the mass was outside the alimentary tract. Pyelography showed the left kidney to be displaced downwards and towards the midline but functioning normally.

Treatment.—The patient entered hospital for treatment at the end of January, 1954. Her anæmia responded to iron by mouth, and examination of her abdomen under anæsthesia showed that the mass was a grossly enlarged spleen, possibly with a mass behind it.

Operation.—On Feb. 25 Mr. F. I. Evans explored the splenic area through an oblique left lateral incision after removing the twelfth rib. The spleen was grossly enlarged and surrounded by fibrous adhesions, and there were numerous veins up to 1 inch in diameter in the adjacent fat; these were pulsatile but had no palpable thrill. The left kidney and suprarenal gland were normal. The liver was not enlarged. The spleen was freed with care, and an aneurysm of the splenic artery $^1/_2$ inch proximal to the spleen and adherent to the splenic vein was found. The spleen and aneurysm were removed, and the wound was closed.

Pathology.—The spleen weighed 30 oz., and the aneurysm was about 1 inch in diameter and had a small communication with the adjacent vein. Dissection of the hilum of the spleen revealed a second aneurysm $^1/_2$ inch in diameter, which communicated with three adjacent veins. Microscopy of the spleen showed only congestive changes. Section of the artery did not reveal any evidence of syphilis, and the Wasserman reaction was negative.

Progress.—The patient received ethyl biscoumacetate for a week after the operation to maintain the prothrombin-time at double the normal, and made a satisfactory recovery. Her appetite improved rapidly, and she is regaining her lost weight.

Her loss of appetite was presumably caused by the engorgement of the portal vein (and gastric veins) produced by the inflow of blood to the splenic vein at arterial pressure. This may also have interfered with the normal flow from the mesenteric veins into the portal vein and so hindered absorption from the intestine. The enlargement of the spleen was presumably passive from simple congestion.

Preliminary Communication

TOTAL ADRENALECTOMY IN HEPATIC CIRRHOSIS WITH ASCITES

In cases of cirrhosis of the liver with rapidly developing ascites, the urinary excretion of sodium is extremely low.[1] This may be due to altered renal hæmodynamics; but the low level of sodium in the fæces,[2] saliva, and sweat [1] suggests that increased adrenocortical activity may be a causal factor. In dogs with experimental ascites produced by constriction of the thoracic inferior cava bilateral adrenalectomy induces sodium diuresis and disappearance of the ascites.[3] The dogs may then be kept in good health by small doses of deoxycortone acetate, whereas large doses cause recurrence of the ascites. These findings suggest that total adrenalectomy might be of value in clinical cases of cirrhotic ascites which fail to respond to other measures.

A 52-year-old man developed ascites in July, 1953. Clinical examination and liver-function tests indicated that the cause was cirrhosis of the liver, which was later confirmed by histological examination. Therapy included a low-salt diet with sodium-free protein supplements, ion-exchange resin, ammonium chloride, and frequent injections of mercurial diuretics. The ascites was never controlled, and paracentesis abdominis was done in March and again in May, 1954. After the second paracentesis, which involved the removal of 600 g. of protein, the patient was closely studied in hospital, where he was found to have an extremely low urinary excretion of sodium (<1 m.eq. per twenty-four hours) together with very poor sodium diuresis after administration of mercurial diuretics. Ascitic fluid steadily reaccumulated, and further paracenteses and protein wastage seemed inevitable. In view of this, total adrenalectomy was advised in the hope that it might result in increased urinary excretion of sodium and facilitate control of the ascites. Right adrenalectomy was done on June 17 and left adrenalectomy on July 1. Cortisone therapy was started on June 30. Histological examination of the adrenal glands showed considerable hyperplasia of the chromaffin cells; the cortex appeared normal.

Tables I and II show changes in sodium excretion after the operations. The following features are evident:

1. Before adrenalectomy urinary excretion of sodium was less than 1 m.eq. per twenty-four hours, and excretion was unaltered by the addition to the diet of an extra 5 g. of sodium chloride. Since total adrenalectomy and after the dosage of cortisone had been reduced to 12·5 mg. daily, the urinary sodium excretion has varied between 1·5 and 73·5 m.eq. per twenty-four hours (see table I).

2. Before total adrenalectomy six injections of mercurial diuretics were followed by urinary excretion of 7·6–164·5 m.eq.

TABLE I—URINE SODIUM EXCRETION (M.EQ. PER TWENTY-FOUR HOURS)

Date (1954)	Cortisone (mg.)	Other therapy	Urine	
			Vol. (ml.)	Na (m.eq.)
June 12	..		1280	0·33
,, 13	..		1210	0·36
,, 14	..		1420	0·37
,, 15	..	5 g. NaCl	1710	0·43
,, 16	..	5 g. NaCl	960	0·31
,, 17	..	Rt. adrenalectomy	700	0·34
,, 18	..		1125	0·93
,, 19	..		1960	1·25
,, 20	..		850	11·4
,, 21	..		1780	1·32
,, 22	..		1170	0·48
,, 23	..	2 ml. mercaptomerin sod.	1240	7·57
,, 24	..		1350	0·91
,, 25	..		1580	0·55
,, 26	..		1920	0·56
,, 27	..		1110	0·46
,, 28	..		1500	0·41
,, 29	..		1680	0·41
,, 30	200		1800	0·67
July 1	300	Lt. adrenalectomy	..	..
,, 2	300		985	0·81
,, 3	200		950	0·45
,, 4	100		1090	0·41
,, 5	75		1520	0·30
,, 6	50		1520	0·71
,, 7	25		1520	1·12
,, 8	25		1380	2·16
,, 9	25		1500	4·87
,, 10	25		1830	12·4
,, 11	25		950	20
,, 12	25		1720	73·5
,, 13	25		1940	59·1
,, 14	25		1500	15·4
,, 15	25		1720	39·1
,, 16	25		1400	17·1
,, 17	25		2140	22·3
,, 18	25	2 ml. mercaptomerin sod.	2280	180·5
,, 19	25		1600	58·8
,, 20	12·5	Paracentesis (11 litres)	670	29·1
,, 21	100	2 litres physiol. saline	1010	26·4
,, 22	50		1910	41·4
,, 23	25		1610	8·4
,, 24	12·5		1670	13·9
,, 25	12·5	2 ml. mercaptomerin sod.	2130	97·5
,, 26	12·5		1520	18·6
,, 27	12·5	2 ml. mercaptomerin sod.	2170	84·8
,, 28	12·5	Start 'Carbo-resin' 75 g. daily	2090	9·5
,, 29	12·5	2 ml. mercaptomerin sod.	2380	120
,, 30	12·5		2450	15·3
,, 31	12·5		1885	1·5
Aug. 1	12·5	2 ml. mercaptomerin sod.	2510	112·3
,, 2	12·5		1955	8·9
,, 3	12·5		2330	4·0
,, 4	12·5		1750	5·7
,, 5	12·5		2360	8·3
Sept. 13	12·5		1440	56·3
,, 14	12·5	Carbo-resin stopped	1040	38
,, 15	125	3 pints physiol. saline	1140	24·2
,, 16	25		1310	16
,, 17	12·5		1155	13
,, 18	12·5		1310	14·7
,, 19	12·5		1050	12·1
,, 20	12·5		820	7·8
,, 21	25	2 ml. mercaptomerin sod.	1430	77
,, 22	25		1270	21·3
,, 23	25		900	8·3
,, 24	25	Restart carbo-resin	1300	12·7
,, 25	25		2280	19·7
,, 26	25	2 ml. mercaptomerin sod.	2320	144
,, 27	25		1760	21

1. Eisenmenger, W. J., Blondheim, S. H., Bongiovanni, A. M., Kunkel, H. G. *J. clin. Invest.* 1950, **29**, 1491.
2. Berger, E., Steele, J. M. *Ibid*, 1952, **31**, 451.
3. Davis, J. O., Howell, D. S., Southworth, J. L. *Circulation Res.* 1953, **1**, 260.

TABLE II—URINARY EXCRETION OF SODIUM (M.EQ.) IN TWENTY-FOUR HOURS AFTER INJECTION OF 2 ML. MERCURIAL DIURETIC

Before total adrenalectomy			After total adrenalectomy		
Date (1954)	Urine		Date (1954)	Urine	
	Vol. (ml.)	Na (m.eq.)		Vol. (ml.)	Na (m.eq.)
May 7	1260	26·3	‡July 1		
* ,, 12	1700	17·8	,, 18	2280	180·5
* ,, 14	2140	13·9	,, 25	2130	97·5
* ,, 22	1900	24·8	,, 27	2170	84·8
*June 5	3860	164·5	* ,, 29	2380	120
† ,, 17			*Aug. 1	2510	112·3
,, 23	1240	7·6	Sept. 21	1430	77·0
			,, 26	2320	144·0
Av. ..		42·5	Av. ..		116·6

* Receiving carbo-resin.
† Rt. adrenalectomy.
‡ Lt. adrenalectomy.

sodium (average 42·5 m.eq.) in twenty-four hours. After total adrenalectomy, seven injections of mercurial diuretics were followed by urinary excretion of 77·0–180·5 m.eq. sodium (average 116·6 m.eq.) in twenty-four hours (see table II).

Since July 29 it has been possible to regulate the quantity of ascitic fluid, and this period includes five weeks during which the patient remained at home. Complete disappearance of ascites has coincided with general weakness, nausea, hypotension, and a fall in the serum-sodium level, but these disturbances are apparently prevented by maintaining a small quantity of ascitic fluid. It has been found necessary to continue with a low-salt diet (approximately 0·5 g. [22 m.eq.] sodium), resin, and mercurial diuretics. Changes in body-weight serve as the guide to the dosage of resin and frequency of injections required.

It is too early to assess the full implications and therapeutic value of total adrenalectomy in this patient.

I am grateful to Dr. C. C. Cobb for referring the case, and to Prof. R. E. Tunbridge for his advice and encouragement. Mr. H. S. Shucksmith operated on the patient, and Dr. W. Goldie made the histological examination.

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Medical Societies

ASSOCIATION OF CLINICAL PATHOLOGISTS

THE 53rd general meeting of this association was held in Brighton on Sept. 30–Oct. 2, under the presidency of Dr. E. N. DAVEY (Gloucester). Last week we reported the combined meeting with the Association of Clinical Biochemists on Oct. 2, and we now publish summaries of a few of the papers given at the preceding meeting.

Myelofibrosis

Dr. M. S. R. HUTT, Dr. G. WETHERLEY-MEIN, and Dr. J. L. PINNIGER (London) reported six cases of generalised marrow fibrosis. This condition might present with clinical and hæmatological features which differ from the classical picture of myelofibrosis. The blood pictures were respectively those of acute aleukæmic leukæmia, chronic myeloid leukæmia, subacute myeloid leukæmia, polycythæmia, and aplastic anæmia. Splenomegaly was not a constant feature, and the one common factor in all these states was the difficulty in obtaining adequate marrow aspiration samples. Myelofibrosis should therefore be considered in any case of marrow dysfunction associated with a dry tap. A study of the histological material showed that this process was a primary proliferation of cells of the reticulum-cell/fibroblast series, associated with varying degrees of proliferation of the hæmopoietic cells. This association was most frequent with granulocytes, red cells, and 'megakaryocyte-like cells. It was found that reticulin stains were of particular value in demonstrating this association. It was suggested that these cases established that myelofibrosis was related to the leukæmias and lymphomas.

Bone-marrow in Hodgkin's Disease

Dr. S. VARADI (Sheffield) reported that in five cases of Hodgkin's disease Reed-Sternberg cells had been identified in the bone-marrow. If marrow aspiration was performed at the site where the bone was tender on pressure, the puncture was likely to display abnormal cells. If the marrow was fibrotic the puncture might be almost a "dry tap." The demonstration of Dorothy Reed cells in the poor hypocellular material in these cases would obviate the necessity of trephining. In some cases in which histological examination showed a non-specific granulomatous lesion, the identification of Dorothy Reed cells in the dry-fixed smear would establish the diagnosis.

Fibro-elastosis

Dr. J. F. HORLEY (Brighton) described three examples of fibro-elastosis of the fœtal heart. All were born to healthy mothers who had suffered no illness during pregnancy. Necropsy showed no abnormality except for the changes in the heart. There was striking thickening of the endocardial layers of the left ventricle in each case. The weight of the heart varied from 17 to 25 g. All three hearts had small left ventricles, two extremely small. In one there was complete aortic stenosis, and in the other two partial fusion of aortic cusps without gross scarring. There was evidence that, within the widening concept of fibro-elastosis, a small group consisting of hypoplastic left ventricle, thickened endocardium, and degrees of aortic-cusp fusion could usefully be identified. In this group the most likely explanation of the thickened endocardium was fibrous replacement of ischæmic myocardium.

A Typhimurium Infection

Dr. G. R. OSBORN (Derby) described liver biopsies and necropsy findings in a girl who died at the age of 5 after an infection with *Salmonella typhimurium* lasting over 3 years. A multilobular cirrhosis developed. Masses of salmonellæ, proliferating or lying dormant with little reaction to them, were found in small bile-ducts when the disease had been in progress for 11 months and again at necropsy. In the early stages she responded to chloramphenicol and aureomycin but then became resistant. Later she appeared to recover after treatment with oxytetracycline for one year. Three months after stopping this drug, she died unexpectedly with necrotic lesions of Peyer's patches resembling those of typhoid. Salmonella was recovered easily from the liver, bile, and bowel; culture from the spleen was negative.

Theca-cell Tumours of the Ovary

Dr. R. I. K. ELLIOTT (Brighton) said that theca-cell tumours of the ovary fell into two groups: the xanthofibromata, which resembled fibromata of the ovary, but were characterised by yellow areas rich in lipoid; and the thecomata, which were difficult to distinguish from granulosa-cell tumours. The presence of a reticulin meshwork in the thecoma, but not in the granulosa-cell tumour, was of some value in differentiation, but the occurrence of mixed tumours made the boundary difficult to define. Clinically the two types did not differ very much; both showed endocrine effects in 60–70% of cases. The low rate of malignancy (3%) and the frequency of association with carcinoma of the endometrium (20%) were the other important features of this tumour group.

Acquired Hypofibrinogenæmia

Dr. H. LEMPERT (Manchester) discussed a case of carcinoma of the prostate with bone metastases in a man of 60. There were two severe hæmorrhagic episodes with an interval of eight months. In the first episode the plasma-fibrinogen level fell to 43 mg. per 100 ml. and the platelets to 50,000 per c.mm. The fibrinogen level returned to normal within five days, while the platelets took a few days longer. In the second episode, in which the patient died, the platelets were affected to a greater extent than the fibrinogen. Prior to death the platelets were 27,000 per c.mm. and the fibrinogen 120 mg. per 100 ml. A fibrinolytic mechanism was demonstrated in the second attack. This confirmed the findings of Tagnon and his co-workers.[1] At necropsy there were no metastases in the liver. There seems to be good evidence that the hæmorrhagic state is brought about by factors released intermittently from the metastatic deposits in the bone-marrow. These factors appear capable of destroying fibrinogen, fibrin prothrombin, factor v, and platelets.

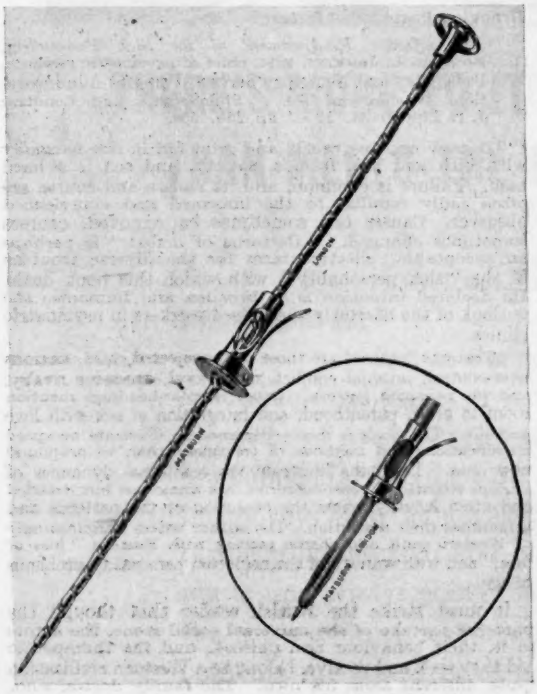
1. Tagnon, H. J., Schulman, P., Whitmore, W. F. *Amer. J. Med.* 1953, **15**, 875.

New Inventions

A BLADDER-PERFORATOR

A NEED was felt for an instrument which would be strong enough to insert a large suprapubic catheter and yet be safe in the hands of the inexperienced who may be called on to do a suprapubic cystostomy as an emergency operation. The Riches introducer will not insert a catheter large enough to deal adequately with blood-clot or lumps of fibrin or pus. Kidd's perforator, which is rarely used now, made the tiro afraid of plunging too far and pinning the patient to the table.

This new instrument eliminates these defects. It consists of a thin metal rod which unscrews in the middle for ease of storage and sterilisation and is grooved to give a better grip to the catheter. A 34 Ch. (68 Be) rubber catheter fits easily over this, being pierced by the bayonet end of the knife. The adjustable guard is then clipped over the catheter and rod as shown in the inset. The guard not only holds the catheter stretched in position, but also can be adjusted to the obesity of the patient. Under either local or general anæsthesia a small incision



is made in the midline half-way between the umbilicus and the symphysis pubis. After deflection of the peritoneum upwards the instrument is plunged boldly downwards and backwards. This can be done safely with force, the rounded end of the instrument fitting into the palm of the right hand, while the left hand acts as a guide. The catheter is released by a forward movement of the trigger mechanism on the guard, and the control rod is withdrawn.

By this means a suprapubic cystostomy can be done if necessary in the patient's bed and without spilling unintentionally a drop of urine and a little blood.

I wish to thank Prof. V. W. Dix and Mr. G. C. Tresidder for their help and encouragement in the "blooding" of this instrument, and Mr. Davies, instrument supervisor, for supplying the prototype. This instrument has been manufactured for me by Messrs. Matburn, 25, Red Lion Street, W.C.1.

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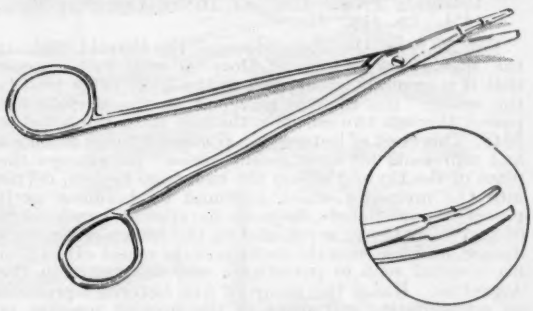
LIGATURE-CARRYING DISSECTION SCISSORS

LIGATURE of vessels in continuity before division is sound surgical technique. Working, for example, on the greater curvature of the stomach a surgeon who has an assistant capable of tying reliable knots may cut a window in the omentum on either side of the vessel



with scissors, pass artery forceps under the vessel, grasp a thread, and pull it through for the assistant to tie.

The modified Macindoe scissors here described are adapted for this technique; they have narrow tips and can therefore penetrate small openings. The terminal $^{3}/_{8}$ inch is sharp for cutting windows and adhesions. The next $^{1}/_{2}$ inch is blunted and its extent is marked by grooves cut on the concave aspect of the instrument; this part is used for grasping the ligature and pulling it through under the vessel for the assistant to tie. The remaining proximal parts of the blades are sharp and used for cutting the vascular pedicle and the ligatures.

This instrument saves the surgeon several movements. It can be used in many circumstances and can be manufactured by anyone capable of blunting a pair of scissors.

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REGULATING CLIP FOR INTRAVENOUS TRANSFUSION IN INFANTS

IN the treatment of gastro-enteritis in infants it is often necessary to transfuse solutions of electrolytes at a slow and accurately determined rate of about 8–16 drops a minute. The regulating clips in common use have too coarse an action for this purpose.

I have devised a very simple clip which is about six times as sensitive and in practice enables the rate to be altered one drop a minute either way without difficulty. It achieves this result through a leve[illegible]tion of 5 to 1 and a regulating screw with a finer thread, 4 B.A. instead of 2 B.A.

To insert the tubing the drip is opened to a wide angle. It is then closed and secured by a toggle on the regulating screw.

The clip is made out of plated brass to prevent rusting.

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Reviews of Books

Lectures on the Thyroid

J. H. MEANS, M.D., Jackson professor of clinical medicine emeritus, Harvard University. Cambridge: Harvard University Press. London: Oxford University Press. 1954. Pp. 113. 24*s*.

FOR 37 years Dr. Means directed the thyroid clinic at the Massachusetts General Hospital with such success that it is generally recognised as the finest of its kind in the world. His notable textbook on the thyroid has passed through two editions, the last being published in 1948. This book of lectures is a postscript to his textbook and represents his most recent views. He surveys the place of the thyroid within the endocrine system, delves into the mysteries which surround its hormone as it passes into the tissues, discusses the clinical management of thyroid patients, speculates on the causes of Graves's disease, and describes the findings of the recent expedition his hospital sent to investigate endemic goitre in the Argentine. Hence the group of five lectures represents an authoritative statement of the present position in thyroid research. Being in lecture form, the book is sometimes rather diffuse; but the reader is helped along by the easy, almost conversational, style we have come to *associate with Dr. Means.*

Practical Obstetrics

2nd ed. BRUCE T. MAYES, M.B. Sydney, F.R.C.S.E., professor of obstetrics, University of Sydney. Sydney and London: Angus & Robertson. 1954. Pp. 497. 87*s*. 6*d*.

Prof. Bruce Mayes, as the Sims-Black professor of the Royal College of Obstetricians and Gynæcologists, has recently made a lecture tour of the British Isles, when many of his colleagues in this country were charmed by his sincerity and devotion to obstetrics, and many students were delighted by his teaching. All will read his latest book with interest even though some will disagree with his opinions.

It is based on a series of bulletins in obstetrics that Professor Mayes wrote for doctors in the Services in 1939–46. It is apparently addressed to those practitioners in Australia, and perhaps elsewhere, who may find themselves having to do midwifery without recent training or much experience, or seemingly much surgical knowledge; for very full details are sometimes given, even to the extent of how the rectus sheath and the peritoneum should be opened in cæsarean section. Much of the teaching will be acceptable, but some may not.

For babies born of diabetic mothers the use of an oxygen tent with "continuous oxygen" is recommended despite the proved relation between retrolental fibroplasia and oxygen administration. 'Pituitrin' in 1 ml. (presumably 10-unit) doses is advocated without reservation, both to prevent and treat postpartum hæmorrhage. But what of pituitary shock? The first case described in the chapter on postpartum hæmorrhage may illustrate this condition, though no mention is made of it. Three preparations containing respectively ergotamine tartrate, ergometrine, and ergotoxine, tyramine, and ergamine are all given equal weights as oxytocics—a view which is difficult to reconcile with the oxytocic properties of the ergot alkaloids, so fully worked out about twenty years ago. Treatment of brow presentation is said to be cæsarean section, without mention of any alternative: this, too, is contrary to published experience. Ingerslev,[1] for instance, states that though cæsarean section may often be necessary some 40% of these cases can be delivered spontaneously without difficulty, while others allow of easy forceps delivery after correction to face or vertex presentation.

It is easy to see how popular Professor Mayes's war-time bulletins must have been: there is a refreshing sincerity and homeliness about his style. But it is doubtful if this book will have as much appeal, except to isolated practitioners overseas. Those practising obstetrics in Britain will find much wisdom in its pages; but it will be less useful to them because the conditions of obstetric practice in this country are so different.

1. Ingerslev, M. *Acta obstet. gynec. scand.* 1951, **30**, 278.

Malnutrition in African Mothers, Infants and Young Children

Report of the Second Inter-African (C.C.T.A.) Conference on Nutrition, Gambia 1952. H.M. Stationery Office. 1954. Pp. 398. 25*s*.

THE conference held in 1952 at the Medical Research Council's field research laboratory, Fajara, Gambia, under the presidency of Prof. B. S. Platt, was attended by over fifty people, representing nearly all African countries. The meeting contributed much to our understanding of the importance of nutrition in the welfare of African mothers and children. This verbatim report of the proceedings describes the epidemiology, clinical features, morbid anatomy, biochemistry, dietetics, and public aspects of the subject. It is certainly the most comprehensive record of kwashiorkor at present available. During the eighteen months between the conference and the appearance of the report, however, all the important new contributions presented by the delegates have been published elsewhere; and the many repetitions and irrelevances (inevitable in a verbatim report) are irksome. Nevertheless, though untidy, the volume will be appreciated for the mass of valuable information it contains.

Breaking Patterns of Defeat

The Effective Readjustment of the Sick Personality. RICHARD L. JENKINS, M.D., chief of psychiatric research, Psychiatry and Neurology Service, Veterans Administration, Washington, D.C. Philadelphia and London: J. B. Lippincott. 1954. Pp. 270. 55*s*.

To grow up, live, work, and grow old in fair harmony with kith and kin, friends, society, and self is a hard task. Failure is common, and its causes and course are often sadly familiar to the informed and experienced observer. Causes can sometimes be removed, courses sometimes changed. "Patterns of defeat" is perhaps an acceptable collective term for the diverse troubles of the "sick personality" with which this book deals. Its declared intention is to broaden and humanise the outlook of the narrowly specialised workers in psychiatric clinics.

"Patterns" named are those of the rejected child, anxious over-control, internal conflict, withdrawal, excessive rivalry, and the paranoid pattern. Other chapter-headings mention room to grow, parenthood, and integration of sex with love and life. The book is more concerned to illustrate accepted classifications and methods of treatment than to propound new ones. Diagrams illustrate the emotional dynamics of various situations; case-histories, not numerous but detailed and often lengthy, show the evolution of the patterns and sometimes their resolution. The author writes illuminatingly of Western guilt and shame pairing with Eastern "loss of face," and with warmth of the neglected personality problems of age.

It must strike the British reader that though the patterns partake of the universal social scene, the actors in it, their behaviour and outlook, and the therapeutic aid they seek and receive, belong to a Western civilisation quite different from his own. The family doctor who, one would think, should play a part in keeping patients in tune and resolving their discords is conspicuously absent from this stage.

The Anatomy of the Bronchial Tree (2nd ed. London: Oxford University Press. 1954. Pp. 243. 45*s*.).—Sir Russell Brock's splendid book has been widely accepted as the standard work on the subject, and in this new edition he has largely recast it so as to relate the pathological applications more closely to the anatomy of the bronchopulmonary segments. At the same time the terminology has been modified to conform with the newly introduced international standard nomenclature. The first edition was based on a series of previously published articles, so there was some unevenness in structure which has now been remedied to make a very clear and authoritative book. The many illustrations are excellent, and it is difficult to imagine how this complex subject could be presented more lucidly.

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THE LANCET
LONDON : SATURDAY, OCT. 23, 1954

Poliomyelitis Vaccines

VACCINES of inactivated and live poliomyelitis virus are the subject of much speculation [1–4] and controversy. Vaccines of inactivated virus are now prepared from all three serological types of poliomyelitis virus, which are grown in tissue-cultures of monkey kidney and inactivated with formaldehyde. In a large trial in the U.S.A. the vaccine has been inoculated parenterally in three injections over a period of about one month. SALK [5] has reported that in about half a million children such injections have caused no untoward effects, and that they have given rise to significant titres of antibody against all three types of virus. Although nothing is known of the protective power of the vaccine (preliminary results are not expected until next March) this looks a very promising start. But it is only the first hurdle in a long race. One of the most serious difficulties is to assess the duration of protective action. Obviously temporary protection which postponed an attack of poliomyelitis for a few years, till an age when paralysis is more likely to result from infection, would be undesirable; and this possibility suggests a need for carefully evaluating subclinical infections in vaccinated people. An increase in the ratio of subclinical to paralytic infections after vaccination would probably indicate that advantageous long-term effects might be expected, while a decrease in this ratio might suggest the reverse. Any hint of temporary protective action would raise the question of further inoculations at yearly, two-yearly, or longer intervals—a measure which might involve considerable risk of allergic reactions to monkey-kidney tissue.

Vaccines producing subclinical infections when taken by mouth pose greater immediate difficulties but may nevertheless prove the best means of preventing poliomyelitis. One difficulty is to secure stable avirulent variants of all three types of virus. SABIN et al.[6] have already made important progress towards this end. By repeated and rapid passages in tissue-culture of all three types of virus they have isolated variants with greatly diminished virulence for cynomolgus monkeys. Adaptation to the chick embryo would be a great advantage, since this would avert the risk of contamination by any other viruses that may be present in monkey tissues; but so far only type-2 virus has been thus adapted.[7] A second difficulty is that the avirulent variants have to be tested in volunteers. Such volunteers, besides accepting a possible risk to themselves, have to be rigidly isolated, to prevent them from unwittingly passing on their infection. The few results so far are encouraging. KOPROWSKI et al., who earlier reported results with type-2 virus,[8] have now administered avirulent virus of type 1 to one volunteer, and of types 1 and 2 to two further volunteers.[9] No symptoms ensued, and in each there developed antibodies to the infecting virus.

Vaccine of inactivated virus is already being made on a large scale in the U.S.A. If the first trials of this vaccine show that it has a protective effect, there is likely to be strong pressure in the U.S.A., and perhaps also in Britain, to use it widely. Such pressure should be resisted; for no-one will know how long any protection may last, temporary protection may in the long run prove worse than no protection at all, and the repeated inoculations that might provide constant protection might also involve a serious risk of allergic reactions to monkey-kidney tissue. Inactivated vaccine would no doubt be in great demand for countering a severe epidemic; but its administration after the epidemic had started would involve the well-known risk of any inoculation during an epidemic period, and epidemics cannot at present be anticipated. It may not be easy to explain these objections to a public that is naturally eager for any measure that will check the spread of this distressing disease.

Cancer of the Rectum

IT is a pity that the rectum was ever given a name. It is not straight, its upper limit cannot be defined, and the inference that it is an anatomical unit has stultified thought and tended to obscure important anatomical facts. There are good reasons for regarding that part of the rectum which lies above Houston's third valve, and therefore the peritoneal reflection, as belonging to the colon. This part is derived from the hindgut; whereas the lower part develops from the postallantoic gut.[10] In 1925 VILLEMIN et al.[11] demonstrated in the full-term fœtus a cleavage of the lymphatic drainage at this junction, with lymph from the *rectum colonique* passing only upwards and that from the *rectum bas* draining both upwards and downwards and laterally to the pararectal glands. These findings have since been confirmed.[12] Their significance in relation to carcinoma of the rectum is obvious; but it has only lately been appreciated that local recurrence is commoner after excision of growths from the lower segment. GILCHRIST and DAVID [13] reported a 32% recurrence-rate for "extraperitoneal" lesions, compared with 18% for those above the peritoneal reflection; and of 110 of PFEIFFER and MILLER'S [14] patients who underwent rectal excision for growths below the peritoneal reflection only 41 (37%) survived for five years—a proportion significantly lower than that for excision of cancer of the rectum generally.

Operations for cancer of the rectum are largely governed by the need to remove affected lymph-

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3. Stanley, N. F. *Med. J. Aust.* 1954, ii, 417.
4. Third International Poliomyelitis Conference, Rome, 1954. See *Lancet*, Sept. 25, 1954, p. 650.
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6. Sabin, A. B., Hennessem, W. A., Winsser, J. *J. exp. Med.* 1954, **99**, 551.
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8. Koprowski, H., Jervis, G. A., Norton, T. W. *Amer. J. Hyg.* 1952, **55**, 108. See *Lancet*, 1952, i, 552.
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11. Villemin, F., Huard, P., Montagné, M. *Rev. Chir., Paris*, 1925, **63**, 39.
12. Blair, J. B., Holyoke, E. A., Best, R. R. *Anat. Rec.* 1950, **108**, 635.
13. Gilchrist, R. K., David, V. C. *Ann. Surg.* 1947, **126**, 421.
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glands. Many years ago both MOYNIHAN and MILES insisted on high ligation of the inferior mesenteric artery, in order to eliminate lymphatic metastases in the space between this artery and the sacral promontory. DEDDISH [15] has found metastases involving hypogastric and obturator lymph-nodes in advanced cases, especially when the primary tumour lay below the peritoneal reflection. In such cases his operation includes in females removal of the uterus and its adnexa together with half the vagina, and in males removal of the prostate and seminal vesicles: which is only one step from pelvic exenteration, with the formation of a "wet" colostomy, as practised by BRUNSCHWIG.[16] It is not always easy to determine, even at operation, how advanced a growth may be; but biopsy gives a good indication. Some regard BRODERS's classification as misleading, since the area from which the sample has been taken may not represent the growth as a whole; but DUKES [17] has established that the percentage of cases with lymphatic metastases is 16 for grade-1 tumours, 42 for grade 2, 73 for grade 3, and 95 for grade 4. Other factors, besides the extent of the operation, have to be considered. Preservation of anal control is so desirable that resection and anastomosis has been increasingly practised. This should not be considered for growths at or below the peritoneal reflection since there will be insufficient clearance of lateral lymphatics at this level. Moreover the *rectum bas* is an organ of special sense, removal of which destroys the sensory arc required for the reflex mechanism of continence. The "pull-through" method of HOCHENEGG enhances the risk of incontinence by damaging the anal sphincters through overstretching when the growth is delivered. Anterior resection is a better operation but with neoplasms in the *rectum colonique* its practicability depends on the extent of lymphatic spread and the clearance required distal to the growth. WASS [18] demands 5 cm. of normal bowel below the growth. CONNELL and ROTTINO [19] undertook the herculean task of studying serial sections, and found intramural spread up to 3–5 cm. distal to the lesion. Bearing in mind that the margin of a specimen may be contracted by fixation to a third its original length [20] at least 10 cm. clearance below the growth is probably necessary. This distance can readily be measured at operation by the width of the surgeon's hand, which shows that anterior resection should be limited to that nebulous area, the rectosigmoid. Broadly speaking, resection is for the colon, excision for the rectum, except where palliation is the sole aim. Excision is being undertaken more commonly nowadays. At one centre in this country in 1936 16% of patients with cancer of the rectum had the rectum excised; by 1949 (when the total number of cases had doubled) the proportion had increased to 57%. The figures for palliative operations and for inoperable cases were 54% and 30% in 1936, compared with 29% and 14% in 1949.[21] In GRINNELL's [22] series the increase of excisions has had the curious effect over the years 1941–45 of reducing the survival-rate for those who recovered from operation, though the absolute survival-rate continued to rise.

There still remain the failures due to hepatic and pelvic recurrences, which are in part due to venous spread. The possibility of venous invasion can be roughly predicted by BRODERS's method of grading the primary tumour [17]; but the exact incidence has been uncertain. DUKES [17] has given the figure of 17%, GRINNELL of 36%,[23] in operation specimens; at necropsy it has been found to be as high as 61%.[24] At the Mayo Clinic an ingenious method of making radio-opaque venous injections into operation specimens has revealed venous involvement in 31% of patients for whom excision had been done with a hope of cure; palliative excisions included, the figure was 43%.[25] The danger of malignant embolism from the veins is enhanced by manipulation at operation—which suggests that examination of the growth should be restricted to inspection until the main vessels have been ligated. In 81% of cases the metastases from venous emboli are in the liver.[24] RAVEN [26] has removed secondary growths in the liver; and WANGENSTEEN [27] has even undertaken a sixth premeditated "look": resection was followed by five laparotomies, four of them to find recurrences until finally none were to be seen. The patient had a cæcal growth, but the method of the "second look" has been applied to carcinoma of the rectum.

Whether the problem is approached from this post-hoc aspect or the pre-hoc attitude reflected in BRUNSCHWIG's exenteration, the question is: Are such massive or repeated operations justified? Sometimes they eliminate the growth, but often the attempt fails, and the patient may be left an invalid.

Flutter and Fibrillation

THE belief that both flutter and fibrillation are due to circus movements of a wave of excitation in the auricles is still widely held. LEWIS's [28] original observations, which accorded with MINES's earlier demonstration of a circus movement in the isolated auricular muscles of fishes, were based on flutter produced by faradic stimulation in dogs, and on electrocardiographic studies in man. In dogs he traced the course of the wave upwards in the right auricle, from the inferior vena cava to the region of the sino-auricular node, by measuring the time intervals between the summit of the auricular wave in lead II and the beginning of the intrinsic deflections in simultaneously recorded leads from electrodes placed on the heart. He did not expose the left atrium directly, but assumed from the time of arrival of successive impulses at the inferior vena cava that the wave circulated at a regular rate round the great veins. The undulating character of the auricular wave in the limb electrocardiogram supported the concept of continuous electrical activity; and so did calculations from three leads taken in the sagittal

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16. Brunschwig, A., Daniel, W. *Surg. Gynec. Obstet.* 1954, **99**, 324.
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19. Connell, J. F., Rottino, A. *Arch. Surg.* 1949, **59**, 807.
20. Dunphy, J. E., Broderick, E. G. *Surgery*, 1951, **30**, 106.
21. United Birmingham Hospitals: Annual Cancer Report, 1953; p. 50.
22. Grinnell, R. S. *Surg. Gynec. Obstet.* 1953, **96**, 31.
23. Grinnell, R. S. *Cancer, N.Y.* 1950, **3**, 641.
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25. Madison, M. S., Dockerty, M. B., Waugh, J. M. *Ibid.* 1954, **99**, 170.
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27. Wangensteen, O. H., Lewis, F. J., Arhelger, S. W., Muller, J. J., Maclean, L. D. *Surg. Gynec. Obstet.* 1954, **99**, 257.
28. Lewis, T. The Mechanism and Graphic Registration of the Heart Beat. London, 1925.

plane of a patient, which indicated that the electrical axis rotated through 360° during each auricular cycle. Observations on fibrillation suggested a similar process, but with a faster and less regular course.

The concept of a circus movement was first seriously challenged by SCHERF and his associates,[29] who investigated flutter and fibrillation produced in dogs by injecting aconitine into the auricular appendage and the region of the sino-auricular node. Isolation of the excitatory focus, either by clamping the appendage or by cooling, stopped the arrhythmia, which returned when the clamp was removed or when cooling ceased. This could only mean that the arrhythmia was caused by a single rapidly discharging focus. Evidence for this view comes from the work of PRINZMETAL et al.[30] with high-speed cinephotography at a rate of 2000 frames per second. Viewed in slow motion, the films showed that in flutter the wave of activity spread in all directions from the focus of excitation, without any sign of circus movement, and that the peaks of systole and diastole occurred simultaneously in both auricles. These observations were made on dogs with flutter provoked either electrically or by aconitine, and on a patient in whom flutter started spontaneously during an operation on the heart. Electrocardiograms taken directly from the heart in dogs, and from different levels in the œsophagus of the patient, confirmed the caudo-cephalic direction of the wave; but the time taken for the wave to travel the upward part of its course was inconsistent with a circus movement round the great veins at any of the common auricular rates. Even more significant was the absence of any change in the electrocardiographic pattern that could be ascribed to the return wave of a circus movement. Lastly, PRINZMETAL et al.[30 31] claim to show that the undulant character of the flutter wave in a standard electrocardiogram is due to the presence of a Ta wave of auricular repolarisation, and not to a state of constant electrical activity. Similar observations on auricular fibrillation were made in both man and dogs. High-speed cinematography showed two kinds of waves: (1) rapid, irregular, and unpredictable contractions of minute muscle areas; and (2) larger, more or less organised, but irregular waves. Œsophageal electrocardiograms, recorded with a cathode-ray oscilloscope, failed to show any constant sequence of electrical activity such as might be expected from a circus movement.

On the other hand, LEWIS's views are apparently supported by the observations of ROSENBLUETH and RAMOS,[32] who found that blocking the auricular fibres between the superior and inferior vena cava, by crushing or by applying cocaine, facilitated the production of arrhythmia with the characters of a circus movement. For the production of a circus movement there must be a path of conducting muscle surrounding an obstacle with a perimeter greater than the product of the conductive velocity of the impulse and the duration of the functional refractory period of the muscle. ROSENBLUETH and RAMOS suggest that normally the intercaval muscle reduces the obstacle of the great veins below the effective size, and so prevents flutter.

On the whole recent work indicates that both flutter and fibrillation are due to a rapidly discharging focus rather than circus movement. The question arises whether these disorders are not essentially similar to auricular (paroxysmal) tachycardia. EVANS[33] was among the first to point out the difficulty of distinguishing between flutter and auricular tachycardia by electrocardiography, while PRINZMETAL et al. have shown that in dogs increasingly rapid stimulation provokes an arrhythmia which changes from auricular tachycardia to flutter, and later to fibrillation. They suggest that progressive failure of conduction may account for the difference between these disorders. Nevertheless, the predominance of upright P waves in leads II and III in auricular tachycardia, and of inverted waves in flutter, suggests that the two arrhythmias usually arise from opposite ends of the auricle. Whatever the ultimate verdict, clinicians will continue to distinguish auricular tachycardia from flutter and fibrillation, if only because of the distinct differences in ætiology, treatment, and prognosis.

29. Scherf, D., Romano, F. J., Terranova, R. *Amer. Heart J.* 1948, **36**, 241.
30. Prinzmetal, M., et al. *Amer. J. Med.* 1951, **11**, 410.
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Annotations

THE PHYSICIAN AS INVESTIGATOR

IN his Harveian Oration to the College of Physicians last Monday, Sir Charles Symonds said that most young physicians want to follow Harvey's injunction and prosecute research; and he did not think it true that consulting practice and research are incompatible. True, the full-time research-worker has certain advantages; but so has the practising physician, though these may be less apparent. His chief advantage lies in the range and intensity of his exposure to stimuli: at the end of the day his mind carries a load of unanswered questions. Moreover, being compelled to direct his glance successively towards different points of the compass, he may see things not evident to those whose gaze is fixed in one direction. But he lacks time; and Sir Charles felt that hospital authorities should all recognise that some of the time the physician spends at hospital is properly given to study and research. Boards and committees should take full advantage of their opportunity for encouraging him to undertake part-time research; and he should also be given more opportunity to spend part of his training in the laboratory, for without such training few men in these days can get very far. It would be of advantage, again, if some of the whole-time appointments in clinical research were given to men who have already had experience of consulting practice. This would help to bridge the gap which now exists between the whole-time clinical research-worker and the practitioner, to the detriment of both.

As an example of the busy practising physician who is also an investigator, Sir Charles chose Thomas Willis (1621–75). As a clinician Willis was the first to recognise diabetes mellitus and myasthenia gravis, and gave good accounts of migraine and epilepsy, ascribing the latter to an "explosion" in the brain. He was also perhaps the first to envisage a hormone, when he said that the blood receives from the testes a ferment which increases vitality and is responsible for the changes of puberty. But Willis also made great contributions to anatomy, and Sir Charles's inquiries had enabled him to dispose of the allegation of Anthony Wood (perpetuated by Michael Foster) that for whatever is anatomical in his book *De cerebri anatome* the glory belongs to his pupil Richard Lower. (Wood drew his information from Stubbe, but

33. Evans, W. *Brit. Heart J.* 1944, **6**, 221.

took no account of a postscript by the latter admitting that, though Lower did the dissections, Willis's was the master mind which inspired and directed the work.) Willis not only described for the first time the arterial circle at the base of the brain which is called after him but also perceived that it provides alternative channels —"manifold ways" (as he put it) for the blood to go about, so that if one be stopped another can be found. He saw that his circle could explain why obstruction of an internal carotid artery is not necessarily followed by apoplexy or hemiplegia; and in a case of headache following such obstruction he attributed the pain to distension of the membranes, caused by the unusual rush of blood into the vessels that remained patent. Today, said Sir Charles, our observations by arteriography and other methods support this opinion. It is evident that the brain is supplied by three separate streams of blood—through the basilar artery and the two internal carotids—and we now know that in the communicating arteries these streams are separated from one another by "dead points" whose position depends on the relative pressures in the arteries. There are of course other collateral means of supplying the brain, but the circle of Willis must be the most important source of the compensating flow, enabling the brain to obtain its main supplies from whichever internal carotid artery is unobstructed.

In choosing The Circle of Willis as the subject of his Harveian Oration, Sir Charles Symonds gave a happy example of how work begun in Harvey's own time is being directly continued in our own. When he concluded, the President spoke of the great stimulus which Sir Charles himself has given to neurology in the thirty years since he produced his paper on spontaneous subarachnoid hæmorrhage. He has made this contribution because he has never ceased to question Nature.

AIR HYGIENE IN THE SCHOOLROOM

THE Air Hygiene Committee of the Medical Research Council has lately described the results of a well-controlled trial of the effect of ultraviolet irradiation on the spread of airborne infections in a group of schools in the London area.[1] This investigation led to the general conclusion that irradiation did not influence the total sickness-absence rates of the children and could not be recommended, at least in urban schools in this country, as an effective measure for the control of airborne disease. The observations made in the field and in the laboratory in the course of this inquiry are probably more comprehensive than any of their sort hitherto recorded, and their further analysis may throw some light on the spread of respiratory infection. The mechanisms concerned are of more than academic importance, since it is reasonable to think that diseases conveyed by droplets that fall rapidly to earth, by droplet nuclei that float in the air, and by dust particles from clothing and the floor would be susceptible to different methods of control —respectively, perhaps, to the use of spacing methods, disinfectant aerosols or ultraviolet light, and dust-suppressive measures such as the oiling of floors and fabrics. Last week three of the workers responsible for different aspects of the investigation opened a discussion by the epidemiology section of the Royal Society of Medicine.

Dr. R. E. O. Williams drew attention to the fact that the children of the infant departments of the irradiated schools had a more favourable record than their counterparts in the control schools with respect to absences due to nine causes. Chickenpox, scarlet fever, and asthma were about half as common; and certain other diseases, including otitis and "gastritis," were substantially less frequent. There was no difference in the incidence of colds and influenza. Of considerable interest also was the reduction in the irradiated schools of the secondary-attack rate from measles—that is, in the proportion of susceptible children that got the disease after exposure to a classmate who was just falling ill.

Dr. O. M. Lidwell discussed the bacteriological findings —the capture of organisms with the slit-sampler—and attempted to relate the concentration of bacteria to the prevailing physical conditions and the activities of the children. Irradiation reduced the number of organisms of respiratory origin ("mouth streptococci," with *Streptococcus salivarius* as indicator) to levels of a half to a fifth, but it reduced the total bacterial load by only about 20%. A very large part of the variation in numbers of airborne bacteria from one time to another could not be attributed to any determined cause, and such variation was probably due partly to unrepresentative sampling of the rooms (occasioned by the necessity to minimise disturbance) and to day-to-day differences in the clothing, habits, and nasopharyngeal flora of the children. Of the many factors considered, five were specially significant—ventilation, the amount of talking and of activity, season, and relative humidity. Several further factors that were possibly significant were themselves correlated with one or other of these five. Ventilation was an important factor. It affected the mouth streptococci less than the general flora; this difference was associated with the larger average particle size of mouth streptococci, which settled more rapidly. In summer raising of dust increased the saprophytic organisms, and in winter coughs and sneezes increased the respiratory flora. Talking had a greater influence on the numbers of *Strep. salivarius*, confirming that these originated mainly from the upper respiratory tract. On the other hand, the concentration of enterococci, which were derived from floor dust, was related to activity of the sort that involved moving about the room. Clearly the general flora, *Strep. salivarius*, and enterococci should be considered separately as possible indices of environmental contamination related to the risk of acquiring any particular disease.

Dr. D. D. Reid carried the discussion a step further by examining the question whether the variations in environmental conditions and in the kind and concentration of the airborne bacteria could be related to the incidence and spread of infectious disease. The lowering both of the total counts and of the incidence of certain diseases in the infant classes in the irradiated schools was evidence of some relation. A high secondary-attack rate of measles was associated with talking and, to a smaller extent, with activity. The rates diminished in step with increase in ventilation, indoor temperature, and relative humidity. Further, there was a clear relation between a high concentration of *Strep. salivarius* (presumably a measure of droplet spray) and the ready transmission of measles. With respect to other diseases, it appeared that classroom conditions and child behaviour favouring the dissemination of organisms from clothing and the floor also favoured the spread of sore throats, whereas gastric disorders spread easily under conditions where mouth organisms were found in high concentrations.

It thus seems possible that the outcome of different methods of air hygiene may be partly explained in terms of the source of the infected material—for instance, the mouth or clothing or floor dust—and of differences in its physical dispersion. It is satisfactory to know that the bacteriologist's methods of measuring potentially dangerous pollution by respiratory bacteria accord with the epidemiologist's traditional measures of the risk of spread. Despite such complicating factors as the possible transmission of infection outside school-hours, the inquiry has shown that different processes of transmission are important for different respiratory diseases. But the speakers emphasised that an association between observations does not imply a causal relationship, and that their

1. Air Disinfection with Ultra-violet Irradiation. *Spec. Rep. Ser. med. Res. Coun., Lond.* no. 283. H.M. Stationery Office, 1954. See *Lancet*, Oct. 2, 1954, p. 692.

conclusions can only be tentative. The discussion provided a reminder that a disease may respond differently to the same control measures on different occasions. The success and failure which, some years ago, attended two similar trials of dust-suppressive measures for the control of cross-infection in measles wards may have been due to differences in the intensity of the prevailing bacterial load. The authors of the report emphasised that present knowledge of the modes of transmission of infectious disease in the classroom does not warrant the definite formulation of new control measures; and they re-stated their view that the general use of ultraviolet irradiation is not justifiable, since the infections for which it seemed effective accounted for a relatively insignificant proportion of the total absences.

This notable piece of team-work makes it clear that much has yet to be learnt about the transmission of respiratory disease, but it encourages the belief that inquiries of this kind fully repay the great labour involved.

ORIGIN OF IDIOPATHIC EPILEPSY

At necropsy in cases of epilepsy sclerosis of Ammon's horn, on the medial surface of the temporal lobe, is often the only abnormality (apart from cerebral congestion and œdema when death has taken place during a fit). In "idiopathic" epilepsy, moreover, the clinical picture often suggests abnormal discharge from the temporal lobe. These observations may be connected, for histological studies by Earle et al.[1] suggest that temporal-lobe epilepsy commonly results from cerebral anoxia or injury at birth. Lilienfeld and Pasamanick,[2] in an inquiry into the birth-histories of 396 epileptic children, found appreciably more complications of pregnancy and parturition, and a higher incidence of prematurity and neonatal abnormality, in the epileptics than in a control group. These workers, who previously made a similar study of pregnancy complications in the ætiology of cerebral palsy,[3] suggest that epilepsy should take its place in a "continuum of reproductive casualty," ranging from stillbirths and neonatal deaths to cerebral palsies. Birth injury, though probably not the one cause of idiopathic epilepsy, should be recognised as a possible precipitating factor.

VIRULENCE-ENHANCING EFFECT OF ANTIBIOTICS

It is well known that administration of antibiotics, especially those with a broad spectrum, may sometimes upset the balance of host-parasite relations so that organisms normally leading a commensal existence on mucous membranes become virulent and set up infection.[4] The underlying mechanism of this important change is not easy to examine in man, and our ideas about it are based more on our estimate of what seems probable than on observed facts. For example, it is commonly assumed that staphylococci which cause enterocolitis during antibiotic therapy[5] do so because, being or becoming resistant to the antibiotic, they colonise the intestinal mucosa when the antibiotic has removed from the competition for available nutrients the antibiotic-sensitive organisms which normally inhabit the intestine. Certainly staphylococci are often isolated in pure culture from this type of enterocolitis, but is it true that suppression of all organisms save one species encourages that one to increase in virulence? Bonhoff et al.[6] have described a simple but ingenious experiment which will allow this and similar problems to be examined in the mouse. With streptomycin as antibiotic and streptomycin-resistant *Salmonella enteritidis* as test pathogen, they found that one dose of 50 mg. of streptomycin by mouth reduced the infecting dose for half the mice ($I.D._{50}$) from 100,000 to less than 3 salmonellæ, the organisms being inoculated directly by stomach-tube twenty-four hours after the dose of streptomycin. This effect of the single dose of 50 mg. of streptomycin could be detected, although it diminished, for about five days; doses of 5–10 mg. of streptomycin caused smaller increases in susceptibility, but a single dose of 1 mg. had no effect. Mice uninfected with salmonella received 500 mg. of streptomycin by mouth without apparent harm.

There is still no conclusive evidence for or against the belief of Bonhoff et al. that the virulence-enhancing activity of the streptomycin on the salmonella infection was due to changes in the associated microflora of the intestine. They advance arguments against other possible modes of action of the streptomycin—for example, on the tissues of the mouse, or by stimulating growth of salmonella—but the merit of their present contribution lies less in the arguments and conclusions than in the convenience of their experimental model. Bonhoff et al. now propose to examine the nature of the changes in the microflora of the intestine. It will be interesting to learn what these are, and whether they are indeed the cause of the enhanced infection.

SURGICAL WAITING-LISTS

Hospital waiting-lists have long vexed both patients and staff. Where it is possible to apply the method now being tested in Birmingham, surgical waiting-lists—which are the longest—can be reduced to manageable length.

Most cases on general surgical waiting-lists are herniæ, hæmorrhoids, or varicose veins. If the average stay in hospital of a patient with hernia is ten days (in the practice of many surgeons it is longer) then one hospital bed can accommodate only 36 patients in a year. But for most such cases the elaborate organisation of a surgical ward is unnecessary after the third post-operative day, when the patient could go to a convalescent institution. In this way two patients could be admitted and operated on every week for each hospital bed set aside for the purpose, provided that the bed was permanently covered by two convalescent beds. If every surgeon set aside one bed for herniæ, one hernia operation would be added to each operating-list (supposing that the surgeon operates twice weekly). Thus the turnover of one bed would be increased almost threefold to a hundred a year. The distribution of beds between the surgeons is probably better than setting aside a block of beds as a hernia unit, to be "worked" by one or two surgeons (perhaps registrars), whose lists would consist of little else. Waiting-lists for surgical treatment of varicose veins are more easily dealt with, since patients can return home the day after operation; here the limiting factor is the number of operating sessions. Most convalescent institutions have a trained nurse and are visited by a doctor; so it should be possible to transfer from hospital after ten days' stay patients who have had operations for hæmorrhoids; they would stay in the convalescent home for a further ten days.

In the pilot scheme at Birmingham, the surgeon reserves one bed for patients with herniæ; and if a complication prolongs the patient's stay he is transferred to another bed. The scheme was started in the middle of May this year, when about 60 cases of hernia were on one waiting-list, and both the numbers and the waiting-time were increasing. In the nineteen weeks from Jan. 1 to May 17 only 10 herniæ had been treated; but in the eighteen subsequent weeks 32 were treated, and the waiting-list had fallen to 25 and the waiting-time to eight months. The date by which all the herniæ will have been treated can now be predicted. By this plan patients can be warned many weeks in advance of the date of their admission.

1. Earle, K. M., Baldwin, M., Penfield, W. *Arch. Neurol. Psychiat., Chicago*, 1953, **69**, 27.
2. Lilienfeld, A. M., Pasamanick, B. *J. Amer. med. Ass.* 1954, **155**, 719.
3. Lilienfeld, A. M., Parkhurst, E. *Amer. J. Hyg.* 1951, **53**, 262.
4. Hay, P., McKenzie, P. *Lancet*, 1954, **i**, 945.
5. See *Ibid*, p. 967.
6. Bonhoff, M., Drake, B. L., Miller, C. P. *Proc. Soc. exp. Biol., N.Y.* 1954, **86**, 132.

ERYTHROMYCIN IN DIPHTHERIA

THERE is some evidence that erythromycin may be better than penicillin for the treatment of established diphtheria *infection*. Few would displace antitoxin from first place in the treatment of the *disease*, but penicillin has for some years been used as an adjunct. Erythromycin was so used in 3 cases by Blute [1] who also gave this alone to a carrier; and in all 4 the organism was eliminated from the pharynx within twenty-four hours. Forbes [2] treated diphtheria with antitoxin and a five-day course of penicillin, repeating the course of penicillin in cases where the organism still persisted. 14 cases in which infection with virulent *Corynebacterium diphtheriæ* persisted after two courses of penicillin were treated with a five-day course of erythromycin 200 mg. every six or eight hours. Negative swabs were obtained in all instances, and a follow-up after three weeks failed to reveal any return of virulent organisms.

It has been thought that persistence of virulent *C. diphtheriæ* in the pharynx after one or more courses of penicillin might be due to inaccessibility of the organism to the drug; but it now seems possible that a more potent antibiotic, such as erythromycin, may be relied on to clear the pharynx of this invader.

DEVELOPMENTS IN THE TRAINING OF PRISONERS

OUR prisons are at last getting slightly less crowded. During 1953, the Commissioners of Prisons [3] report, the population fell from a peak of about 24,000 in March to slightly below 23,000 by the end of the year. The programme of expansion into open prisons also continued, and was completed during the year: we now have 7 open prisons and 2 medium-security prisons for men, 3 open prisons for women, and 9 open-training borstals for boys and 1 for girls. The aim, as in all prison training, is to get the inmates to accept their fair share of responsibility towards society, and the results in open prisons suggest that this is often achieved. Over 90% of the 292 men discharged from open prisons since 1948 (when the scheme was started), and over 92% of the 62 women discharged, had not been reconvicted by the end of 1951. An opportunity for prisoners to give valuable service was provided, in 1953, by the East Coast floods. They worked hard and keenly to close the breaches in the sea wall, rescue stranded families, and save sheep and cattle.

Much is now done to fit prisoners for their return to their families, and the system of home leave for star prisoners has been particularly successful. At Leyhill open prison, for instance, 93 men went on home leave during the year; all reported back on time, and all were glad of the chance to see their families and to start to make arrangements for taking jobs on discharge. At Wakefield, men on home leave during foggy weather, all came back an hour ahead of time from different parts of the country, lest the fog should make them late. Courses of lectures are arranged for those nearing discharge, to help them to adjust to life and work outside the prison, and to resume their family life. The most ambitious project has been the setting up of a hostel in the grounds of Bristol Prison, from which men go out to work in the city.

Five men who were serving sentences of at least 5 years' preventive detention, and who had progressed to the stage at which discharge could be considered, were installed there in November, 1953, and placed in jobs in the city. They were greatly pleased and impressed by their new quarters and worked hard and reliably. Each man drew his own wages and was charged a fixed sum for board and lodging; he was allowed reasonable expenses for travelling, meals, and personal spending, and was required to provide for his dependants, and to bank the remainder of his wages against his discharge. These men did not come in contact with the other prisoners, and they were free to go out and visit the friends they made in the city, to attend entertainments, football matches, and evening classes, to buy their own clothing and to "train themselves for freedom through freedom." Their response was magnificent: they were determined that the experiment should succeed, and were aware that they were starting a tradition. The first man discharged left with a splendid testimonial from his employer, £28 in savings, and a large parcel of household linen which he had bought for his wife. It will be interesting to see how this experiment progresses.

At Birmingham Prison five courses, each lasting 8–10 weeks, have been held for neglectful mothers. There is a growing opinion that the place for a neglectful mother is not prison, but a home where she can be trained to look after her children, and where the children can be with her while she learns. Nevertheless, if she has already been sent to prison it is as well that the time should be spent usefully in learning something about her job.

The psychologist at Durham Prison, quoted in the report, describes the typical woman charged with child neglect as being in her early thirties, married uneasily to, or separated from, a man who probably has personality defects similar to her own. She usually comes of a large and turbulent family where personal relationships were poor, and she is of low intelligence. She usually has a family of three or four children, whom she loves and wants. The offence occurs when it does because the weight of adverse conditions, which has grown heavier with each new child, has become too much for her. Active cruelty has seldom been the cause of her conviction: only two women (one of whom was psychoneurotic) out of twenty investigated had been cruel.

The prison course is in housewifery, cooking, and laundry work, and there are also lectures and demonstrations, with visual aids, on such subjects as antenatal care, the care of infants and children, the work of the health visitor, home nursing, and the use of cooking-stoves. If the mothers wish, they can arrange to be visited on their return home by their local health visitor. The Discharged Prisoners' Aid Society fits them out with clothing on discharge, and a member of the Women's Voluntary Services calls soon after their return home to give friendly help and advice, as well as such material things (pots, pans, bedding) as are needed.

Among young people aged 16–21, the convictions per 100,000 population over 16 seem to have passed the peak reached in 1946–48, when they ranged from 26 to 30 for boys and 2·3–3·1 for girls; the figures in 1952 were only 21 and 1·5 respectively. The success of Campsfield House, the detention centre set up in 1952 for the purpose of giving "a short sharp shock" to young offenders, does not seem to be striking. The discipline is deliberately firm and bracing, except at weekends, and the boys are expected to work hard, both at general education and chores; but the time spent in the centre is short, and the staff find they have little chance to get down to the root of the trouble in any particular boy. They often have the satisfaction of seeing a notable change in a boy's attitude in conduct during his stay; but very few of the boys ask for voluntary supervision when they leave, and many refuse it; and some 23% reappeared in court within three months of discharge. More than half of these, however, were boys who had already failed to respond to the good influences of an approved school: they were already, so to speak, immunised against institutional methods. The essence of shock is surprise, and detention centres, if they are to succeed, should be reserved for those still capable of this emotion. But short remedies for emotional and moral disorders are often disappointing: and, in the opinion of Dr. Max Grünhut, who has reported on the first 100 boys received at the centre, the effects of a period of detention are more likely to be lasting if it is followed by constructive aftercare. A second detention centre, at Goudhurst, Kent, was opened early this year, and a third is in preparation near Derby.

1. Blute, J. F. jun. *New Engl. J. Med.* 1954, **251**, 70.
2. Forbes, J. A. *Med. J. Aust.* 1954, **ii**, 501.
3. Report for 1953. Cmd. 9259. London: H.M. Stationery Office. 1954. Pp. 194. 6s.

Public Health

PUBLIC OPINION ON CANCER

A Survey among Women in the Manchester Area

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Two surveys of women's opinion about cancer were made to discover the state of general knowledge about cancer and to throw further light on why women put off seeking advice for symptoms which they suspect to be cancer.

This inquiry followed an investigation into causes of delay in seeking advice among hospital patients, and was designed to test opinions of women who were not yet personally involved and could therefore be approached more frankly. It was centred on cancer of the breast and of the cervix uteri, which two diseases are curable if treated in an early stage and present symptoms which a patient can recognise. The main aspects investigated were (1) opinion on curability and on the value of treatment and (2) knowledge of symptoms.

The inquiry was in two parts. The main part was a cancer survey made in 1953 by the British Institute of Public Opinion on behalf of the social research department of the Christie Hospital. The second part was supplementary to an independent survey of tuberculosis in Salford and consisted of four sets of questions integrated into what was clearly a tuberculosis survey.

Cancer Survey

The names of 1200 women were systematically selected from the electoral rolls of Manchester, Salford, and Stockport. No special campaign of cancer education had been pursued in recent years in this area. The sample was classified in four age-groups and in three social classes :

Age-groups

21–29	205
30–49	516
50–64	290
65 and over	189
	1200

Social-class Groups

	Well-to-do women, wives of men in the higher professions, &c. (This group, the "average +" is too small for calculating percentages, and comparison by class relates to the three classes below.) [1]	38
Higher :	Other middle-class professional workers, teachers, supervisory grades, wives of owners and managers, &c.	194
Predominant :	Working class, all manual workers and weekly wage earners, who have regular jobs and not a very low standard of living	726
Lower :	Very poor, without regular jobs, or living solely on retirement pensions, in poor-type housing	242
		1200

These women were interviewed at home by means of a questionnaire. The survey was well received, only 1% refusing to help, and most respondents answering the questions frankly and without embarrassment, as if appreciating the value of the inquiry.

Tuberculosis Survey

An intensive mass-radiography survey was taking place in Salford under the joint auspices of the Manchester Regional Hospital Board and the Salford Public Health Department. In connection with this survey information was collected from households selected by the random-number method. The field work for this was done partly by health visitors and partly by a firm of commercial canvassers. Four questions from the cancer-survey questionnaire, framed in such a way that their relevance to cancer was masked, were added to the end of the schedule on tuberculosis, to be asked of women in the sample aged 21 or more. Thus it became possible to compare the results of asking questions in this oblique way with the same questions asked in a different context. Altogether 1203 questionnaires were received from this source, 470 completed by health visitors and 733 by the commercial canvassers. Results have been analysed separately for the two types of interviewer.

The Questionnaires

The 4 questions common to both the cancer and the tuberculosis surveys were as follows :

(1) What to you is the most alarming of the following diseases : heart trouble, tuberculosis, asthma, cancer, rheumatism ?

(2) Can any of them be cured yet or not ?

(3) Which of these symptoms would strike you as the most alarming ?

(*a*) constant cough,
(*b*) lump in the breast which does not hurt,
(*c*) losing weight,
(*d*) seeing a show of blood or discharge 10 years or so after the change of life,
(*e*) frequent pain after eating.

(4) Do you agree with the following statements people have made about the cause of cancer ? The cause of cancer is :

(*a*) not keeping clean,
(*b*) living with people who have it,
(*c*) not yet known,
(*d*) hereditary (runs in families),
(*e*) bad living.

In both questionnaires the order in which the preliminary questions were asked was designed to disguise the emphasis on cancer. In the cancer survey interviewers were instructed not to give away the subject of the inquiry until answers had been obtained to several introductory questions. In the tuberculosis survey respondents were not aware until the final question that the focus had changed from tuberculosis to cancer.

The cancer-survey questionnaire consisted of 26 main questions,[2] of which 17 (including the 4 listed above) are discussed in the various sections of this study in an order other than that in which they were asked. The remaining 9 questions were not related to the main theme of curability or knowledge of symptoms and consequently are not analysed here. Their subject-matter was :

(1) Disease thought to kill most people in this country.
(2) Whether men or women are more liable to cancer.
(3) If a "tumour" is cancer.
(4) If anything can be done to prevent cancer.
(5) Attitude to visiting someone with cancer.
(6) Should the woman who thinks she has cancer tell her family.
(7) Knowledge of radium and deep X-ray treatment.
(8) Two final questions, to end on a more general note,
(9) on knowledge of the discoverer of radium.

All the figures in the tables are percentages except those which appear against the word "sample" and indicate the number of interviews on which the percentages are based. To some questions women gave more

1. For clarity these three classes, technically known as "average," "average −," and "group D" have been renamed.

2. Copies of the complete document may be had on application to THE LANCET Office. The complete analysis of the cancer and tuberculosis surveys is available in collected form and can be obtained from the Director, Christie Hospital and Holt Radium Institute, Manchester, on receipt of five shillings (free to applicants from a foreign country where currency transfer is difficult).

than one reply, and the answers in such cases exceed 100%.

Results

CURABILITY OF CANCER AND VALUE OF TREATMENT

(1) *What to you is the most alarming of the following diseases: heart trouble, tuberculosis, asthma, cancer, rheumatism?*

	Cancer survey	Tuberculosis survey
Cancer	70%	74%
Tuberculosis	19%	20%
Heart trouble	12%	6%
Asthma	3%	2%
Rheumatism	3%	2%

The results in both surveys are remarkably similar, in spite of the question in the tuberculosis survey being asked at the end of an interview clearly purporting to deal with tuberculosis. Cancer was rated most alarming by women in all social classes and of all ages, but the relative importance of tuberculosis increased as social class declined.

(2) *Can any of them be cured or not?* (*Usually, sometimes, seldom, never, do not know*)

CANCER

Opinion on curability of cancer	Cancer survey	Tuberculosis survey	
		Health visitors	Commercial canvassers
Yes { usually, sometimes, seldom	36%	33%	15%
No, never	50%	55%	74%
Do not know	14%	11%	11%
Sample	1200	470	733

TUBERCULOSIS

Opinion on curability of tuberculosis	Cancer survey	Tuberculosis survey	
		Health visitors	Commercial canvassers
Yes { usually, sometimes, seldom	80%	79%	75%
No, never	12%	12%	15%
Do not know	8%	8%	10%
Sample	1200	470	733

The results for cancer contrasted with the results for tuberculosis underline clearly the significant finding in both surveys that a high proportion of women reply that cancer is never cured. This proportion is not influenced by age, but it increases as social class declines. Figures have been given separately for the two types of interviewer in the tuberculosis survey because the commercial canvassers' results for cancer differ significantly from those of the health visitors.

In this English survey, therefore, only a third or less of the women thought that cancer could ever be cured. In the United States popular belief that cancer is curable is much higher, and has increased progressively since 1940. The American Institute of Public Opinion, comparing the results of three nation-wide surveys, gives the following results for the question: do you think cancer is curable?

	1940	1950	1953
Yes	56%	60%	65%
No	27%	23%	20%
Do not know	17%	17%	15%

This in effect is a two-thirds acceptance compared with the English one-third. They said moreover: "One out of every five persons voluntarily qualified their answers by saying it is curable 'if caught in time.'"[3]

3. A.I.P.O. April, 1953.

(3) *Do you think early treatment increases the chance of a cure or doesn't it make any difference?*

	Cancer	Tuberculosis
Increases the chance of a cure	57%	90%
Makes no difference	29%	5%
Do not know	14%	5%

This question was asked in the cancer survey only, and replies about cancer and tuberculosis are shown. Compared with question 2 the result is illogical in that more women agree that early treatment increases the chance of a cure than agree with the proposition that cancer is curable.

This inconsistency might indicate that the opinion that cancer is never cured is not very strongly held by some women; hence the suggestion that early treatment may increase the chance of a cure is enough to influence them to agree. For obvious reasons interviewers must not question inconsistencies in their respondents' replies. In the cancer survey, as will appear later, further questions approaching the same topic from different angles are asked to try to assess the respondent's real meaning.

The value of early treatment was appreciated by more women in the higher than in the lower social classes.

(4) *Have you personally known anyone who has had cancer?*

Answer	Total	Class		
		Higher	Predominant	Lower
Yes	77%	80%	77%	75%
No	23%	20%	23%	25%
Sample	1200	194	726	242

(5) *Have you ever heard of anyone being cured of cancer?*

Answer	Total	Class		
		Higher	Predominant	Lower
Yes	29%	44%	28%	19%
No	71%	56%	72%	81%
Sample	1200	194	726	242

Answers to this question confirm the widespread ignorance in this area about cured cancer. Replies are not influenced by age.

(6) *Treatment for cancer is sometimes painful. In spite of this do you think it worth having, or don't the results make it worth while?*

Answer	Total	Age-group (yr.)			
		21–29	30–49	50–64	65+
Worth having	78%	88%	80%	74%	69%
Not worth having	7%	3%	7%	9%	9%
Do not know	15%	9%	13%	17%	22%
Sample	1200	205	516	290	189

These answers raise the question of what to the respondent is the purpose of treatment. Comparison with the replies on curability in questions 2 and 3 suggests that some are replying that any treatment is better than none, regardless of whether or not it cures. Comparison with other questions shows that the opinion that treatment is not worth having is not related to greater personal experience of cancer, for the proportion who had personally known anyone with cancer is virtually identical with the proportion in the total sample. How-

over, this group does contain, and quite logically, significantly more who think cancer is never cured, more who think early treatment makes no difference, and more who have never heard of anyone being cured of cancer.

Summary of findings.—The outstanding finding is the high proportion of women who think that cancer is never cured. This proportion is higher as social class declines. Four main points stand out:

77% of the women had personally known someone with cancer.

71% had never heard of anyone cured of cancer.

50% thought cancer is never cured.

29% thought that early treatment makes no difference.

KNOWLEDGE OF SYMPTOMS

(7) *Which of these symptoms would strike you as the most alarming?*

(*a*) constant cough,
(*b*) lump in the breast which does not hurt,
(*c*) losing weight,
(*d*) seeing a show of blood or discharge 10 years or so after the change of life,
(*e*) frequent pain after eating.

	Cancer survey	*Tuberculosis survey*
Painless lump in breast	39%	38%
Losing weight	24%	20%
Constant cough	17%	32%
Seeing show of blood, &c.	16%	8%
Frequent pain after eating	7%	3%

This question was asked in the cancer survey before it was known that the survey concerned cancer. It is striking that a painless lump in the breast comes easily first in the results for both surveys, in spite of the question being asked in the tuberculosis survey at the end of an interview on tuberculosis. That a constant cough is considered the most alarming symptom by considerably more women in the tuberculosis survey than in the cancer survey is understandable. Although a painless lump in the breast is ranked the most alarming symptom in all three social classes and in all age-groups, the percentage putting it first declines as social class declines. In the higher class hæmorrhage after the change of life is ranked next to a painless lump in the breast. To the predominant and lower classes losing weight and a constant cough are more alarming.

(8) *Why do you say that . . . is the most alarming symptom?*

This open question was asked in the cancer survey only, and answers for the two cancer symptoms are summarised below. The percentages are based on the number of women who considered that symptom the most alarming.

(*a*) Lump in the breast which does not hurt:

	Sample 467
Cancer, growth or tumour; so little hope, no cure, it spreads, would lead to serious results if not dealt with immediately	83%
Other	14%
Do not know but it would worry me	4%

(*b*) Seeing a show of blood or discharge 10 years or so after the change of life:

	Sample 195
Cancer, growth or tumour	40%
Unnatural, would mean something seriously wrong	24%
Other	21%
Do not know but it would worry me	15%

A further question immediately following the one above tried to ascertain knowledge of these two cancer symptoms in the total sample of the cancer survey.

(9) *If a friend told you she had a lump in the breast, what would you think it meant?*

	Sample 1200
Cancer, a growth or tumour	79%
Cyst or abscess	16%
Other	9%
Don't know, could mean anything	14%

(10) *If a friend told you she had seen a show of blood or discharge 10 years or so after the change of life, what would you think it meant?*

	Sample 1200
Cancer, a growth or tumour	24%
Nothing to worry about, nature righting itself	8%
Something seriously wrong, needing urgent medical attention	7%
Other: fibroid, cyst, &c.	19%
Do not know, never heard of it, &c.	46%

It was also ascertained that most women thought that the breast was the most common site of cancer in women, other sites mentioned being the womb, stomach, and bowels, in that order. Each group was next asked the following question, and answers for cancer of the breast and of the womb are summarised below.

(11) *Can you tell me what the first signs of this form of cancer are?*

First signs of cancer of the breast:

	Sample 897
Lump, painless lump	72%
Painful lump, lump and pain	3%
Pain	6%
Swelling	5%
Discharge of blood from the nipple	2%
Other	3%
Do not know	15%

First signs of cancer of the womb:

	Sample 468
Bleeding	24%
Discharge	22%
Pain	18%
Flooding	13%
Other	8%
Do not know	26%

It should be noted that, although 15% and 26% respectively did not know the first symptoms, not all these were unaware of the significance of cancer symptoms, as shown by their answers to questions 9 and 10.

Summary of findings.—It appears that the breast and the womb are considered to be the most common sites of cancer in women. A painless lump in the breast is known to be a cancer symptom by the great majority, and by most of these that it is a first symptom. There is much more ignorance about the symptoms of cancer of the womb, particularly in the lower social class.

OTHER QUESTIONS OF INTEREST

(12) *If she went to hospital (friend with lump in breast previously referred to) what would you expect to happen?*

Suggested treatments in the order in which they were given were as follows:

Massage to remove the lump	11%
The lump "nicked out"	17%
The whole breast removed	18%
Radium or deep X rays	40%
Other treatment	9%
Do not know at all	17%

(13) *Do you consider an operation (cutting) stops cancer spreading, or does it increase the chance of spreading?*

Stops cancer spreading	33%
Increases chance of spreading	19%
Neither	18%
Do not know	30%

(14) *What would you say is the main cause of cancer?*

Knocks, bumps, falls	27%
Shock	6%
Worry, over-work, run down	5%
All born with one, and a knock or irritation brings it out	4%
Heredity	2%
Smoking	2%
Bad food, tinned food, malnutrition	2%
Neglect of health	1%
Bad living, drink, dirt	1%
Other	5%
No-one knows, not yet known	7%
Do not know	46%

(15) *Do you agree with the following statements people have made about the cause of cancer?*

The answers are listed below. This question was also asked in the tuberculosis survey.

The cause of cancer is	Agree		Disagree		Do not know	
	Cancer survey	Tuberculosis survey	Cancer survey	Tuberculosis survey	Cancer survey	Tuberculosis survey
Not keeping clean	17%	10%	57%	79%	26%	11%
Living with people who have it	13%	12%	66%	76%	21%	11%
Not yet known	72%	78%	7%	4%	21%	18%
Heredity (runs in families)	24%	18%	48%	62%	28%	19%
Bad living	18%	23%	55%	65%	27%	12%
Sample	1200	698	1200	698	1200	698

(16) *You don't have to answer, but would you mind saying whether any of your blood relations has had cancer?*

Blood relations with cancer	Total	Class		
		Higher	Predominant	Lower
None	58%	53%	56%	66%
One	26%	25%	27%	23%
Two or more	8%	15%	8%	3%
No reply	6%	6%	7%	5%
Do not know	2%	1%	2%	3%
Sample	1200	194	726	242

(17) *Do you think that the war on cancer is or is not making progress?*

	Cancer survey	*1953 national opinion poll*
Is	67%	35%
Is not	14%	20%
Do not know	19%	45%

(18) *Do you think there should be freer public discussion of its symptoms and possible cure?*

	Cancer survey	*1953 national opinion poll*
Yes	76%	63%
No	9%	12%
Do not know	15%	25%

Questions 17 and 18 had also been asked by the British Institute of Public Opinion in the course of their periodical opinion surveys among samples of the national population, with results published in the *News Chronicle*.[4] Results obtained in these two contexts are contrasted above. The lower proportion of "do not know" replies in the cancer survey is not surprising in view of the different circumstances of the interviews. In the cancer survey the questions had been led up to by previous questions interesting the respondent in cancer.

4. National opinion poll no. 357, May, 1953.

(19) *Do you think a doctor should tell a person frankly when he is sure she has cancer?*

Should tell	40%
Should not tell	34%
Do not know	26%

The balance of answers in this question is of such interest that further analysis is indicated. The percentage saying that he should not tell is the same in each social class. Unlike the usual trend, most of those who do not know are in the higher social class, whereas most of those who say he should tell are in the lower. The numbers who say he should tell decrease as age increases.

The most usual answer to why he should tell is that "a patient has a right to know the truth," followed by "so that they can be prepared and leave everything in order." Other reasons included:

It would prevent them from guessing.
They would worry less and be more helpful.
It would encourage them to get treatment.
People would know anyway, sooner or later.

Those who believed that a doctor should not tell gave the reasons that:

The patient will worry and lose hope.
The patient will be frightened or commit suicide.
The patient knows already.
He should only tell the family.

Most of those who could give no opinion said it would depend on the person and the circumstances.

(20) *All serious diseases are alarming, but women are often more frightened of getting cancer than, say, heart trouble. Why do you think this is?*

This question brought out clearly basic feelings about cancer. The type of comment is very similar in all the social classes. Women of all classes and of all age-groups mentioned the fact of incurability most frequently, then the pain and suffering involved. Below are given the verbatim replies of half the 38 women in the "average +" class—i.e., presumably the most enlightened opinion:

Because it is incurable and so violently painful.
The frightful pain involved.
They have been told so often that it is incurable they believe it.
The suffering is so great, and the end so inevitable after all.
The ghastly pain of it usually ending in death.
It causes more suffering than heart trouble.
The dreadful pain that one automatically associates with cancer.
The pain is so terrifying.
The suffering is so intense and usually so long drawn out.
It always seems to prove fatal.
The widespread idea that they can't do anything about it.
The terrifying consequences—pain, and its finality.
Because there isn't a known cure.
Well, I fancy it's the pain women dread, and the really nasty associations. It is particularly nasty when it breaks down.
The agonising pain usually ending in death.
Because it is a distressing complaint and horrible to nurse.
I believe it is the incurability which alarms women so.
The terrific pain alarms people, and the feeling that there's no cure for it.

Summary of questions 12–20.—Ignorance about the nature and purpose of treatment is profound. Appreciation is considerable of the fact that we really do not know the cause of cancer. There is, however, a surprising amount of prejudice attributing its cause to some moral element—bad living, drinking, smoking, dirt. This may in part explain the element of shame with which cancer tends to be associated. On the vexed question of should the doctor tell, opinon is surprisingly evenly split. A key question on why cancer is alarming brings out all the atmosphere of incurability and pain which was so dominant in the early questions.

Conclusions

Surveys of public opinion have been questioned on the grounds that there is evidence from interviewers that familiarity with surveys is making the public resistant to interviewing, and that the views expressed no longer represent the true state of public opinion. Certainly the results must be interpreted with caution. Most of the questions in the present survey call for opinion on straightforward matters; direct questions do not reach deeper and more emotional levels of thinking. In this connection an interviewer, giving some personal impressions of the field work, wrote:

"There appears to be a sense of shame connected with cancer. It expressed itself in two ways:

(*a*) When it came to the query about family incidence, some women wanted to go back on what they had told me in a friendly way earlier on. Several denied any members with it in a queer way that made me feel they felt they had to hush it up. (Most of my answers to the family incidence came from earlier mention of it *very* carefully pursued.)

(*b*) Also, several said 'No, thank God,' not in a relieved way only, but as though people with cancer have the plague, which was quite at variance with their assurance in answer to another question that they would willingly visit a friend with cancer."

There are several reasons for confidence that these results, so far as they go, do indicate opinion in this community. The sample is sufficiently large and representative. The women were interested in the subject. The similarity of results obtained in the cancer survey and in the very different circumstances of the tuberculosis survey is striking. Furthermore, it is consistent with the popular opinion, expressed in the survey, that half of more than 1000 patients from the same area, attending this hospital with what they suspected to be cancer of the breast, should have delayed seeking advice for three months or more, and 21% for a year or more, after first noticing symptoms.

People's private attitudes, as the survey has indicated are no doubt less enlightened than they are prepared to admit, but their "public opinion" is enough to show the need for education. Cancer of the cervix is predominantly a disease of the lower social groups; yet it is in this class that ignorance of the symptoms is most profound. The great majority of women realise the possible significance of a painless lump in the breast, but there is no sense of urgency when cancer is so widely believed to be incurable.

The survey has shown that women are interested. They must be made aware of the good results that are possible if cancer of the breast and of the cervix are treated in an early stage, and their responsibility for seeking immediate advice must be constantly reiterated.

We are indebted to Dr. F. N. Marshall, senior administrative medical officer, Manchester Regional Hospital Board, and Dr. J. L. Burn, medical officer of health for Salford, for their coöperation in that part of the inquiry connected with the intensive mass-radiography survey; and to the British Institute of Public Opinion for their help.

Second Quarter in England and Wales

The Registrar-General[1] announces provisional figures for England and Wales for the quarter ended June 30, 1954. 175,467 births were registered—a birth-rate of 16·0 per 1000 population; in the corresponding quarter of 1953 the rate was 16·4, and the average rate for the second quarters of the years 1948–52 was 17·1. Still-births numbered 4153—a rate of 23·1 per 1000 total live and still births. Deaths totalled 117,233, representing a death-rate of 10·7 per 1000 population. The infant-mortality rate was 24·7 per 1000 related live births.

1. The Registrar-General's Quarterly Return for England and Wales: Quarter ended June 30, 1954. H.M. Stationery Office. Pp. 32. 1s.

Rehousing of Slum Populations

In 1933 the late Dr. McGonigle[1] surprised everybody by reporting that, when a group of Stockton slum-dwellers were moved to a new housing estate, their health became worse than that of their neighbours who were left behind. The explanation, he found, was that they had to pay a higher rent for their new houses, and had therefore even less money for food. This experience illustrated one of the many problems of rehousing slum populations—problems for which no rapid solutions are possible. As far back as 1874 Sir James Russell[2] emphasised that the evils of slums persist through successive generations, and cannot be overcome "in a period short of the life of one generation, if not of several." The truth of his words is confirmed by a recent investigation by Ferguson and Pettigrew[3] into the living conditions of 718 Glasgow families rehoused for periods of between ten and twenty-seven years, compared with those of 388 families living in old slum property.

4479 persons occupied the 718 new houses included in their survey; all had been built within the last twenty-seven years. 63·1% of them had three apartments, 19·8% four, 15·4% two, and 1·7% five. The average number of persons per room (2·03) was still much higher than in the city as a whole (1·27), but not as high as in the slum population (2·52). 58·6% of the rehoused families had exclusive use of a lavatory, as against only 2·6% in the slums, where in some instances as many as 40 persons shared a lavatory. 35% of the slum dwellings, but only 1 of the new houses, were verminous. The rents paid by rehoused families were appreciably higher than those paid by slum families (partly because the average number of rooms was greater), but Ferguson and Pettigrew do not think that expenditure on food was being cut by these families, as it was in McGonigle's survey. 80% of the rehoused families lived in conditions which an experienced health visitor assessed as "good," but 5% were assessed as having again become frankly "bad." 1·5% of the families were obviously contending with real poverty.

Particularly disquieting are the delinquency figures. The rehoused families included 152 youths between 17 and 18½ years old, and of these 36 had been convicted once, and 5 more than once, since the rehousing. This is a much higher rate than among Glasgow boys as a whole.

On the other hand comparisons between the slum and rehoused families should, Ferguson and Pettigrew point out, take account of the fact that the rehoused group is inevitably older, and therefore has a higher proportion of fatherless families and families with parents in poor health. Despite such adverse factors, standards remained higher in the rehoused group. Direct comparison in child mortality-rates was possible by comparing 52 pairs of mothers, accurately matched as regards age and number of pregnancies. In each group the total number of pregnancies had been 260; and whereas only 201 children were surviving in the slum group, 225 were surviving in the rehoused group.

Ferguson and Pettigrew conclude that among the rehoused "there is still ample evidence of social immaturity, of failure to reflect improved environment." As they point out, their study "shows again that the eradication of slum sickness does not come with the mere erection of new houses."

1. McGonigle, G. C. M. *Proc. R. Soc. Med.* 1933, **26**, 677.
2. Russell, J. B. *Proc. phil. Soc. Glasg.* 1875, **9**, 9.
3. Ferguson, T., Pettigrew, M. G. *Glasg. med. J.* 1954, **35**, 169.

Special Articles

PHYSICAL DISEASE IN A MENTAL OBSERVATION UNIT

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IT is over five years since a large mental observation unit came in close association with the teaching hospital at which we work. Our experience during this time has prompted us to analyse and review the general medical implications of those patients who were admitted for mental observation but in whom there was evidence of physical disease.

TABLE I—PATIENTS DYING IN MENTAL OBSERVATION UNIT WHO HAD BEEN ADMITTED WITH TOXIC CONFUSION, CAUSE NOT PREVIOUSLY DIAGNOSED

Diagnosis	No.	Source			Ages (yr.)
		Home	Teaching hospital	Non-teaching hospital	
Pulmonary tuberculosis	9	7	..	2	53, 54, 65, 66, 66, 66, 66, 68, 70
Cerebral tumour ..	6	3	2	1	38, 63, 63, 68, 75, 76
Cerebral hæmorrhage ..	6	4	..	2	60, 68, 73, 77, 79, 83
Cerebral thrombosis ..	5	3	..	2	52, 64, 77, 79, 81
Chronic congestive cardiac failure	5	4	1	..	40, 51, 55, 62, 72
Carcinoma bronchus ..	5	3	1	1	40, 51, 65, 66, 67
Carcinoma elsewhere ..	5	5	..	..	50, 71, 73, 74, 79
Bleeding gastric ulcer ..	2	1	1	..	77, 85
Cerebral abscess ..	2	1	..	1	52, 63
Phæochromocytoma ..	1	..	..	1	77
Meningitis	1	1	..	..	76
Acute endocarditis ..	1	1	..	..	46
General peritonitis ..	1	..	1	..	65
Lobar pneumonia ..	1	1	..	..	58
Bronchopneumonia ..	1	1	..	..	65
Uræmia	1	1	..	..	73
Ruptured abdominal aneurysm	1	..	..	1	77
Septicæmia	1	1	..	..	89
Total	54	37	6	11	

Our experience during this time has prompted us to analyse and review the general medical implications of those patients who were admitted for mental observation but in whom there was evidence of physical disease.

We have analysed two groups of cases: (1) all those who died in the mental observation unit between September, 1948, and September, 1953; and (2) all those who were transferred from the unit to general wards during the same period. By "general" wards we mean open wards for medical or surgical but not mental cases.

Deaths

There were 329 deaths among the 8480 patients admitted to the unit in the five-year period under review. Of these, 221 were associated with mental disease, 205 being diagnosed as either being senile or having arteriosclerotic dementia. Schizophrenia (4 cases), delirium tremens (4), depression (3), mania (2), mental deficiency (1), presenile dementia (1), and status epilepticus (1) accounted for the rest. The remaining 108 were admitted for either toxic confusion or organic psychosis, and the principal physical conditions responsible are shown in tables I and II.

TABLE II—PATIENTS DYING IN MENTAL OBSERVATION UNIT WHO HAD BEEN ADMITTED WITH TOXIC PSYCHOSIS, CAUSE ALREADY KNOWN

Diagnosis	No.	Source		
		Home	Teaching hospital	Non-teaching hospital
Congestive cardiac failure:				
Pulmonary	10	8	2	..
Hypertensive	7	3	1	3
Rheumatic	6	1	2	3
Carcinomatosis, primary in:				
Bronchus	4	1	2	1
Stomach	2	1	1	..
Other site	12	4	7	1
Uræmia	5	2	2	1
Pulmonary tuberculosis	2	2	..	..
Cerebral thrombosis	1	1	..	..
Coal-gas poisoning	1	..	..	1
Aspirin poisoning	1	..	..	1
Burns	1	..	1	..
Bronchopneumonia	1	1	..	..
Disseminated sclerosis and leucotomy	1	..	1	..
Total	54	24	19	11

In half the patients the underlying disease was unrecognised when the patients were sent to the mental observation unit (table I). The number of cases of undiagnosed pulmonary tuberculosis is noteworthy.

The details of table II call attention to the frequency with which cases of toxic psychosis, whose cause was already known, were admitted to the mental observation unit. The 24 admissions from home are understandable, but the transfer of 30 moribund patients from other hospitals is less easily justifiable. The treatment of the mental confusion so commonly seen in congestive cardiac failure, uræmia, and carcinomatosis can often be undertaken in a general hospital. The transfer to a mental observation unit of patients with coal-gas and aspirin poisoning in the acute stage can hardly be in their best interest; though it is true that attempted suicide usually

TABLE III—PATIENTS SENT TO OBSERVATION WARD AS A RESULT OF ERROR IN DIAGNOSIS
(All transferred to general wards)

Final diagnosis	No.	Source				Ages (yr.)
		Home	Teaching hospital	Non-teaching hospital	Police	
Cerebral tumour ..	8	7	..	1	..	45, 46, 48, 54, 55, 60, 62, 65
Malignant disease ..	4	2	..	..	2	36, 44, 47, 73
Cerebral abscess ..	1	1	..	..	..	46
Meningitis	4	2	1	1	..	29, 42, 52, 57
Anæmia	5	4	..	1	..	29, 40, 62, 63, 85
Myxœdema	5	4	..	1†	..	43, 63, 67, 73, 82
Thyrotoxicosis ..	1	1	..	..	..	56
Hypoglycæmia ..	1	1	..	..	..	71
Tabes dorsalis ..	2	2	..	..	..	65, 82
Thrombosed carotid artery	1	..	..	..	1	47
Disseminated sclerosis	1	1	..	..	..	29
Pellagra	1	1	..	..	..	65
Multiple myeloma ..	1	..	..	1	..	43
Ruptured aorta ..	1	1	..	..	..	69
Œsophageal stricture	1	1*	..	..	..	82
Liver necrosis ..	1	..	..	1	..	37
Pyloric stenosis and alkalosis	3	..	1	2	..	37, 50, 53
Acute endocarditis ..	1	..	1	..	..	55
Bronchopneumonia ..	3	2	1	..	..	33, 53, 62
Strangulated hernia ..	1	1	..	..	..	72
General peritonitis ..	1	1	..	..	..	46
Thrombophlebitis ..	1	1	..	..	..	41
Typhoid fever ..	1	..	..	1*	..	37
Total	49	33	4	9	3	

*Attempted suicide. †Iatrogenic from thiouracil therapy.

argues mental illness, the treatment of the latter should await physical recovery from the poison.

Patients Transferred to General Medical or Surgical Wards

In addition to the 108 patients who died of organic disease shortly after admission to the mental observation unit, a further 208 patients admitted from home or transferred from other hospitals to the mental observation unit were subsequently treated in general wards. Of these 208 patients 49 were admitted to the mental observation unit as the result of an error in diagnosis; 38 were admitted from home, probably because the general practitioner had found difficulty in securing a bed in a general hospital ward; 57 were transferred from a general hospital as difficult patients who could not be managed in a general ward; 59 were patients with known psychiatric illness who were temporarily transferred to general wards for investigation or treatment of their physical illness; and notes of 5 patients could not be traced.

TABLE IV—PATIENTS ADMITTED TO OBSERVATION WARD VIA G.P. PROBABLY BECAUSE BED NOT OBTAINABLE IN GENERAL HOSPITAL

(All transferred to general wards)

Diagnosis	No.	Ages (yr.)	Died	Ultimate disposal		
				Home	Chronic sick	Home for aged
Congestive cardiac failure	15	51, 59, 60, 67, 69, 69, 77, 78, 78, 80, 80, 82, 82, 86, 87	7	5	2	1
Old cerebrovascular accident needing rehabilitation	7	55, 58, 60, 70, 71, 73, 87	2	4	..	1
Hypertension and uræmia	4	52, 63, 57, 73	2	1	1	..
Bronchopneumonia ..	3	61, 66, 74	1	..	1	1
Injury	1	70	..	1	..	..
Cataract	1	84	..	1	..	..
Paralysis agitans ..	1	60	..	1	..	..
Gangrene of leg ..	1	70	1	..	..	..
Motor-neurone disease	1	60	..	..	1	..
Carcinomatosis ..	1	80	1	..	..	..
Rheumatoid arthritis	1	60	..	..	1	..
Pulmonary tuberculosis	1	52	..	..	1	..
Trigeminal neuralgia ..	1	51	..	1	..	..
Total	38		14	14	7	3

The 49 patients who arrived as the result of mistaken diagnosis are analysed in table III, which shows that 33 of them were admitted from home; this underlines the fact that many general practitioners found themselves unable to make the full physical examination of a mentally disturbed patient which would in most cases have revealed the true state of affairs. Policemen are not trained to recognise malignant disease, but the staff of a hospital should be aware of the mental symptoms which may accompany such conditions as cerebral tumour, anæmia, myxœdema, hepatic necrosis, and alkalosis.

Table IV analyses those patients who were in all probability admitted because the practitioner in charge could not obtain a bed in a general ward. The age scatter of these patients shows them to be about a decade older than those in table III. As would be expected, cardiovascular degeneration and bronchopneumonia account for most of this group. They were all transferred to a general ward; and, though just over a third of them died there, it was possible to get a similar number fit to go home.

The 57 cases listed in table V provide a commentary on the reluctance of many hospitals to cope with the nursing of a patient known to be ill with physical disease

TABLE V—PATIENTS TRANSFERRED FROM GENERAL HOSPITALS AS DIFFICULT CASES, ALL EITHER RETURNED TO THE PREVIOUS HOSPITALS OR TREATED IN GENERAL WARDS WITHOUT DIFFICULTY

Diagnosis	From teaching hospital	From non-teaching hospital
Postoperative confusion	3	5
Post-traumatic confusion	4	5
Congestive cardiac failure :		
Hypertensive	2	3*
Rheumatic	3	2
Pulmonary	..	2
Cerebrovascular disease	5	2
Carcinoma of bronchus	1	1
Carcinoma elsewhere	2	1
Psychopaths with organic disease ..	1	2
Gangrene of leg and pain	..	3
Diabetes	1	1
Arthritis	..	1
Disseminated sclerosis	..	1
Scurvy	..	1
Tuberculosis	..	1
Pneumonia	..	1
Chorea	..	1
Neurosyphilis	1	..
Poliomyelitis	1	..
Total	24	33

* Including 1 attempted suicide.

once he becomes difficult to manage or starts to display one of the many psychological traits that appear so often and so understandably in the course of a serious bodily illness. It was found possible to nurse all these patients in general wards or cubicles without difficulty or disturbance.

Of the 59 patients transferred temporarily to a general ward and then returned to the mental observation unit 14 were investigated to exclude organic disease, 34 were treated for physical abnormalities and in the remaining 11 an unsuccessful attempt at rehabilitation from the effects of cerebrovascular disease was made. These patients were all subsequently certified or sent home to the care of relations.

Conclusions

There is room for wider recognition of the mental symptoms with which physical disease may present—e.g., pulmonary tuberculosis; space-occupying intracerebral lesions; acute infections; malignant disease; metabolic disturbances such as uræmia and alkalosis; myxœdema; and anæmia.

The fact that so many elderly patients with cardiovascular disease were admitted to the Mental Observation Unit suggests that facilities for their care in general hospitals are not yet adequate.

It should rarely be necessary to transfer patients to an observation unit when they show signs of confusion in the course of a recognised physical ailment. It should be possible to treat such patients in a general ward or cubicle. Transfer may not only cause deterioration in the patient's physical condition but also distress on recovery.

MINISTER'S REVIEW OF GENERAL PRACTICE

AT the annual meeting of the Executive Councils' Association (England) at Southport on Oct. 15, Mr. Iain Macleod, the Minister of Health, reviewed some trends in the six years of the health service.

GENERAL PRACTITIONERS

He said that the new arrangements by the working party set up to implement the Danckwerts award came into operation in April, 1953, and in that year there was an unprecedented increase in the number of doctors entering general practice in the health service. The net increase of 839 was about three times as great as in the earlier years of the service. Indeed, the Medical

Practices Committee, in its 5th report, asked whether saturation-point in general practice was not now in sight. The maximum number of patients per doctor had been reduced from 4000 to 3500, and the increase in the number of doctors had led to a reduction of the average number of patients on lists (which must have been of the order of 2600 at the start of the service) to roughly 2300.

The system of initial practice allowances, available only in areas designated as under-doctored, had attracted a larger proportion of new entrants to the areas where they were most needed. Competition was still keenest for vacancies in Southern England below a line from the Humber to the Severn—particularly in residential or rural areas, where 50–60 applications for an advertised vacancy were not uncommon. Mr. Macleod's advice to a doctor looking for a vacancy would be: "Go North, young man, go North," where there was less competition, a bigger list, and a warm welcome. Though as a nation we were said to be getting older, statistics showed that general practitioners were getting younger. Nearly half those in the health service were under 45, and over 80% of partners were under 55.

The postgraduate refresher courses for doctors, for which grants were available, were becoming increasingly popular. In 1953, 1265 doctors attended such courses.

One continuing problem was how to restore mobility to general practitioners.

"We do not want a doctor to feel that if he takes a practice in an industrial, or indeed in any other, area, he is virtually bound to remain there for the rest of his life. Such a situation would not be in the best interests of the service. While exchanges of practice are sometimes made, this does not seem to provide a very easy remedy, and I have been glad to learn that methods for increasing mobility are under consideration by the Medical Practices Committee in consultation with the profession."

The growth of partnership was proceeding fast, and 45% of all practices were now partnerships. It was odd that the proportion was much lower in urban than in rural and semi-rural areas, where it reached 70%. During 1953, 1118 additional doctors became members of firms of partners, while the number of doctors practising single-handed fell by 312.

The working party had set aside a substantial sum of money to stimulate group practice. Grants to 30 group practices had been approved in principle.

SURGERIES AND HOME CARE

During the war and the difficult years which followed, doctors' premises were sometimes allowed to fall below a proper level; and these instances, few though we hoped they were, had been commented on in many of the reports on general practice which had appeared in the last few years.

"These comments have naturally been reported in the press and the impression may well have grown up, both here and in other countries, that British standards in this respect are not what they ought to be. This is a matter which concerns the profession very closely, and I have learnt with great pleasure that the profession have already taken action."

The best of general practitioners, in the best-equipped premises, could not ensure that his patients received proper care in their homes if he was unsupported by a proper domiciliary team. Mr. Macleod therefore hoped that all local health authorities, acting in conjunction with the executive council and the local medical committee, would invite the general practitioners in their area to appoint a few of their members to consult with officers of the authority and go through the local health services in detail, to make suggestions for securing closer liaison.

DRUGS

Referring to the high cost of the drugs bill under the health service, Mr. Macleod said:

"The most spectacular progress in the discovery and production of wonderful new drugs is being offset by the crippling cost of a mass of medicine which most doctors will say, when speaking generally, is very largely unnecessary. We have fallen into a bad national habit of persistent medicine-taking, and it is no excuse to say that this habit is even more developed in America or anywhere else. New drugs now make it possible to treat effectively a vastly greater number of illnesses. There are no longer anything like the same long periods of ill health following a serious illness. But good health is a positive, not merely a passive, state. And are not the real invalids among us still greatly outnumbered by those who habitually regard themselves as not quite well but who resort to the medicine bottle instead of getting down to the real cause of the trouble? Let us reflect on all we could do in the way, for example, of improving our mental hospitals, in a chiropody service for old people, further help for the handicapped, if we could produce even a 10% saving in the £43 million we spend on the drugs prescribed to patients in their homes."

Mr. Macleod appealed to all doctors once again to review their prescribing and see whether there were not still ways in which the cost could be reduced without detriment to the patient.

DENTAL SERVICE

Mr. Macleod said there had been a gratifying swing-over in the type of patients treated under the general dental services. Of the 8 million or so courses of treatment given annually no less than 40% now concerned children and young people under 21 and expectant and nursing mothers. There had also been—except for a temporary recession in 1952—a gratifying increase in the proportion of conservative work, which now accounted, in terms of fees paid to dentists, for 34% of all work. The greatest users of the general dental services were young women between the ages of 18 and 25. "This is exactly what we would wish," said Mr. Macleod. "They are the mothers and future mothers of the next generation."

Referring to "the alarming shortage" of dentists, Mr. Macleod said that the causes were obscure. He had much sympathy with the request he had recently received from the British Dental Association that there should be some further inquiry into the reasons for the present state of affairs. No dental service that could be devised could succeed if the calibre of entrants to the profession could not be maintained.

THE SUPPORT OF MEDICAL RESEARCH

UNDER the auspices of the Council for International Organisations of Medical Sciences (C.I.O.M.S.) a conference was held at the Royal Society of Medicine from Oct. 4 to 8 to consider the selection, training, and support of medical research-workers. The conference, under the chairmanship of Sir Harold Himsworth, secretary of the Medical Research Council, was attended by delegates from 16 countries as well as by representatives of W.H.O. and UNESCO.

While recognising that the detailed arrangements appropriate to individual countries would naturally vary in the light of their differing social, cultural, and economic backgrounds, the meeting set itself to clarify the basic requirements for the promotion of medical research anywhere. In the course of its discussions much valuable information came to light and unexpectedly wide agreement was reached: a report will be published in due course under the title The Support of Medical Research.

The fundamental principle of this agreement was that the structure of medical research was based upon two essential foundations—the universities and a central organisation. Each has its own special functions; but they are complementary, and nowadays neither can exist or develop to the full without the support of the other.

UNIVERSITIES

A unique function of universities is that they are the nursery of research-workers, and an inevitable corollary

of this fact is that, if research is to develop in a country, the universities must be adequately supported.

But no institution can produce research-workers unless it provides a favourable climate for research—an atmosphere in which work of sufficiently high quality to fire the imagination of the potential recruit is being done. It has long been recognised that higher education and research are inseparable. "The spirit of research is to a university what morale is to an army." Further, throughout history the universities have been a fertile source of new ideas. The great ideas in research came more often from the investigation of the improbable than the development of a set project; and, although universities have no monopoly of this type of research, they are very favourably situated to pursue it. For all these reasons it is essential that universities should have at their free disposal funds sufficient not only to discharge their teaching duties, but to carry out research at an adequate level. If such provision does not exist, then the central research organisation should consider, as an expedient, the making of block grants to university medical faculties.

Not only should all university teaching staff have as an essential duty the advancement of knowledge by research, but university departments might well include one or more senior posts devoted almost wholly to research. A system of interchange of teaching and research staff between universities and between universities and research organisations is most desirable.

CENTRAL RESEARCH ORGANISATION

Universities, however, are local bodies with special functions apart from research, and nowadays there is a need for a central body to consider the general research policy in the particular field.

Among the special functions of such a central organisation are to consider the research effort as a whole and to channel support to where it is needed; to advise government on scientific matters including the support of medical research; to deal with nation-wide problems and socially urgent questions which, either because of their scale or temporary nature, are unsuitable for universities; to support research in non-university institutions; and to act as a clearing-house of information and as a focus of research with the object of making research-workers better aware of the broader context into which their own work falls and of the wider opportunities beyond it.

The machinery through which a central organisation can act is manifold. It can give grants for special purposes to active workers in universities. It can support research-workers outside universities. It can establish research units around outstanding workers. It can provide special institutes for subjects which are either too specialised for a university or require developing on a scale and with an intensity which would be embarrassing to a university. It can, when desirable, provide a central research institute where many mutually supporting disciplines can be brought together.

Whatever form this central organisation takes, however, it must command the respect and voluntary allegiance of scientists. The scientific members of its policy-directing body must themselves have shown ability in research; and the scientists of the country should have an effective voice in recommending persons for appointment to this body. Neither political, nor geographical or institutional, considerations should determine their election; the sole qualification should be merit.

RELATION OF UNIVERSITIES TO CENTRAL RESEARCH ORGANISATION

Apart from the special functions of the universities and of the central organisation in research, there are overlapping fields in which their collaboration is of mutual benefit. By awarding grants to university workers to supplement the facilities provided by the university, total support can be made appropriate to the research activity of the department. New subjects can be supported in the developmental stage until it is evident whether they deserve a permanent place in the university structure. Fields of work which, although important, are attracting little interest can be sustained.

Close integration between the research organisation and the university should be preserved and extended. Each has much to give the other. The tendency for research-workers to be withdrawn completely from the academic stream is deleterious both to the universities and to the research organisation. At the postgraduate level, teaching and research support each other and nothing but good could result from integrating special research units and institutes with the university in postgraduate teaching. On the organisational side it is imperative that no administrative barrier should obstruct the free interchange of staff between universities and research organisations. To this end salaries and conditions of service in the central organisation should be aligned with those applicable to universities.

SELECTION, RECRUITMENT, AND TRAINING OF PERSONNEL

Since research-workers are drawn almost wholly from the universities and professional medical schools, their selection should, in the first instance, be by their own teachers and made in the light of the candidate's knowledge, interest, and aptitude.

A trial period would follow when a young worker would be attached to a small team working on a fairly well defined project in a department where active research is in progress. He should not, however, be merely a pair of hands in a large plan. The right environment at this stage is of vital importance and the most important element in this is close contact with a first-class research-worker. Longer-term security should not be unduly delayed. For those who have passed the trial, contracts for five or more years are appropriate; but by the age of 35–40 years the decision whether or not to give permanent employment should be taken.

Non-medical as well as medical graduates must be drawn into the research field, although both may require further training before being equipped to undertake active research; the non-medicals needing instruction in biological subjects and the medicals more advanced courses in the basic sciences. Financial support for such further training is essential. The central organisation could help here by making awards available for young workers undertaking such courses. Postgraduate fellowships would be needed later—although these should not normally be awarded until a man had already shown his aptitude for research. Such fellowships should be available not only for study abroad but also for work in another centre in the same country.

The possibility of recruiting research-workers from the technical staff also should not be overlooked: suitable technicians should be encouraged and assisted to take university courses to fit them to become research-workers in their own right.

Considering how often study of the abnormal has thrown light on the normal, the conference were concerned at the decreasing number of medically qualified men now entering the preclinical fields. One factor in this is, undoubtedly, the great length of the medical course. They heard, therefore, with interest of the suggestion to institute degrees in medical sciences for non-medically-qualified workers which would ensure, at least some knowledge of the paraclinical subjects such as pathology.

COLLABORATION

Medical research has become so complex that collaboration is indispensable. It is required between different disciplines in the same research field and between workers in the same field be they in the same or different countries.

Within the same research team the need for focusing several scientific disciplines has usually been met by attaching separate experts in each science. Unless, however, the leader of the team has had sufficient training in the basic science to, at least, speak its language, integration of effort often leaves much to be desired. It is for this reason that, in the training of intending medical research-workers, provision should be made for them to have experience in the basic science most relevant to their interest.

Collaborative studies between research-workers with similar interests have led to some of the most rapid advances in medicine. Such studies, however, must never be forced until the time is ripe for them to be carried out. A central organisation can play a vital part in bringing together research-workers in the same field at the appropriate time, testing their reactions to the suggestion of collaborative work, and providing the wherewithal for such co-operation. The opportunities for research in tropical and subtropical climates should be made more widely known by central organisations and the international exchange of staff facilitated : to this end the wider use of the sabbatical year for the staff of universities and central organisations was to be encouraged.

Consideration was finally given to the question of setting up a central research institute directed by an international body and with an international staff. It was thought that the need for this was rarely indicated from the scientific point of view, and that any extra funds that international organisations had available would be used to better purpose in assisting individual countries to improve and develop their own research structure and facilities, and in encouraging closer international coöperation between countries in the research field.

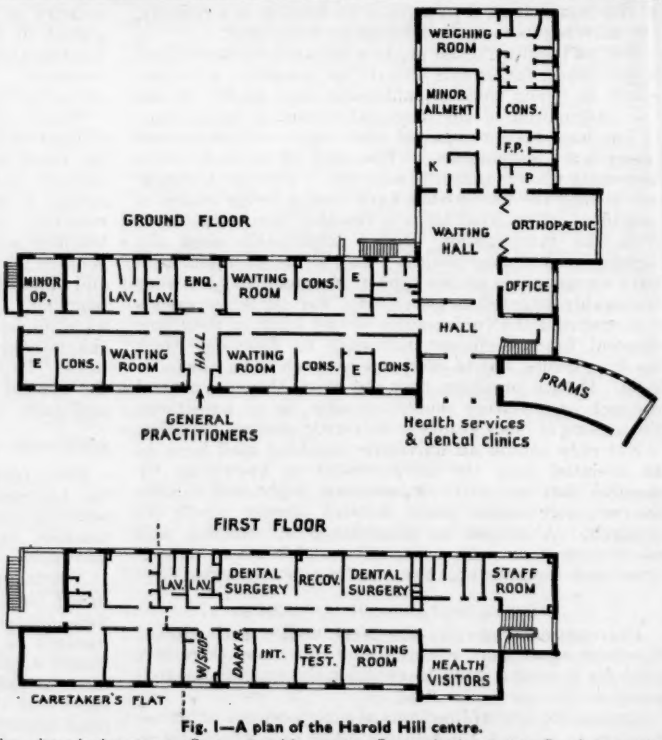

Fig. 1—A plan of the Harold Hill centre.

Int., interviewing-room ; Cons., consulting-room ; E, examination-room ; P, plaster-room ; K, kitchen ; Enq., inquiry office ; F.P., female patients' toilet room.

HAROLD HILL HEALTH CENTRE

A NEW health centre at Harold Hill, near Romford, in Essex was opened by Mr. Aneurin Bevan on Oct. 15. Over 7000 houses have been built by the London County Council on the Harold Hill estate since 1948, and nearly 30,000 people from London have gone to live there. The Essex County Council agreed with the L.C.C. that a site on the estate should be reserved for a health centre of the kind visualised in the National Health Service Act. The Ministry of Health gave final approval for the centre in May last year ; the work began soon afterwards and was finished in July this year. The cost was about £45,000. At the opening ceremony Mr. Bevan received the key of the centre from Mr. H. Conolly, F.R.I.B.A., county architect.

There are two entrances to the building (fig. 1) : the door on the left leads to the rooms allocated to the general medical services ; the one on the right leads to the main block where rooms on the ground and first floor are occupied by the local-health-authority clinics and the general dental services. To cut costs, the rooms throughout the centre have been kept as small as possible and only the bare essentials of furniture have been provided in the first instance.

The Plan

The *general practitioners'* section includes consulting, examination, and waiting rooms (fig. 2), a minor-operations room, and a clinical side-room. Chromium-plated boxes have been set in the walls of the consulting-rooms to enable the clerical staff to pass patients' records to doctors without entering the consulting-rooms. It was originally planned that 4 doctors would practise from the centre, but 9 doctors have in fact asked to work there, so the times of their surgeries have been arranged to fit them all in. There are about 22 general practitioners on the estate.

The *main block* has a heated pram shelter from which mothers and babies can go directly into the entrance hall. On the ground floor, the main waiting-hall is separated from the entrance hall by a glazed screen and doors ; and the waiting-hall is itself divided from an orthopædic room by a partition which can be folded back to provide a lecture hall measuring 41 ft. by 15 ft. Hatchways open into the main hall for the service of refreshments from the kitchen and welfare foods from the food store. Beyond the kitchen there is a minor-ailments room (primarily for use in connection with the school health service) and a weighing-room with individual dressing cubicles. On the first floor there are a health-visitors' interviewing-room, two dental surgeries (one for the general

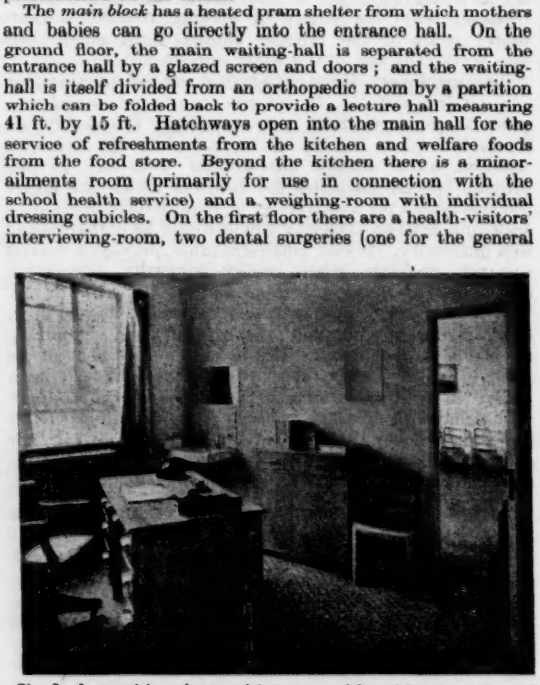

Fig. 2—A practitioner's consulting-room with waiting-room beyond.

service and one for priority treatment), and rooms for the work of the ophthalmic service.

Construction

The outside walls are of London Stock bricks, and the structural floors and roofs are of prestressed concrete. The roofs are waterproofed with bituminous felt laid on an insulating screed of foamed slag concrete.

The building is heated from the basement by two 'Ideal' sectional boilers with a low-pressure hot-water pump supplying hospital-type radiators in the rooms. A 'Beeston' boiler heats the water.

Administration

The centre will be the responsibility of the Romford health area subcommittee. In addition a professional committee will give advice on the running of the centre; this committee will consist of the medical and dental practitioners using the centre, the area medical officer, and the county medical officer of health.

Medical Congresses

CLINICAL CHEMISTRY

ON Sept. 23 some 350 members gathered in Amsterdam for the opening session of the First European Congress on Clinical Chemistry. A brief message of welcome was delivered with enviable facility in three languages by Dr. J. C. M. VERSCHURE, the president.

Isotopes

Prof. C. J. BAKKER (Amsterdam) gave an admirable review of the methods of producing isotopes, referring especially to work done with the cyclotron at the Institute for Nuclear Research in Amsterdam, and with the nuclear reactor in Norway which is run under joint Norwegian and Dutch auspices. Dr. C. B. HEYN (Maastricht) discussed the measurement of radioactivity.

A series of short communications included one by Dr. N. S. C. HEILSKOV, Dr. F. SCHØNHEYDER, and Dr. K. OLESEN (Aarhus) on the effect of immobilisation in bed on nitrogen metabolism in man. The data, obtained by N^{15}-labelling, indicated that the disturbance of nitrogen balance associated with inactivity is due to interference with protein anabolism, since the rate of protein katabolism is unchanged.

The second day was devoted to further consideration of the applications of radioactive isotopes, and was notable for a very lucid talk on their use in the study of body-electrolytes by Mr. N. VEALL, who mentioned particularly some interesting findings on the body-sodium obtained by measuring the total radiation from the body after the injection of Na^{22}. The other papers on this day were concerned mostly with the use of I^{131} in connection with thyroid diseases, and included a general survey of its diagnostic application by Dr. B. SKANSE (Malmö) and also a discussion on the "thigh-neck-clearance" test by Prof. N. F. MACLAGAN and Dr. B. W. MEADE.

Physical Measurements

Prof. A. E. SOBEL (New York), one of the small group of Transatlantic participants, strongly advocated the use of ultra-micro-methods in clinical chemistry, and supported his plea with illustrations of the ingenious small-scale apparatus used in his own laboratory.

The congress heard an admirable address on polarographic technique in the assay of steroid hormones by Prof. C. J. O. R. MORRIS, and also a very revealing report by Dr. I. D. P. WOOTTON on the results of a comparison of the figures obtained when a large number of laboratories in different countries were asked to analyse identical samples of serum despatched from London. A lively discussion followed on the desirability of establishing standards of reference against which various laboratories might check their methods of analysis.

* * *

The organisers, and especially the secretary, Dr. O. MEULENANS (Utrecht), are to be congratulated on their pioneering effort in getting together a large number of clinical chemists from the European countries, including some from the U.S.S.R. and Yugoslavia, and for providing a well-balanced programme.

The Widdicombe File

XVIII. QUO VADIS?

MY DEAR BILL,

I have just seen baby Greymare. What a triumph! Birth-weight 3 lb.; three months in the premature unit; hours of devoted nursing; expressed breast-milk brought fifty miles daily; three blood-transfusions; several courses of antibiotics—and the result a spastic diplegic idiot. Poor Mrs. Greymare. Fortunately not all the results are like this—in fact most are very good—but if you rear "prems" you are bound to get some, especially among the low birth-weights, that were better dead. About twenty years ago a baby with a birth-weight below 4 lb. usually died, and anything heavier usually survived. Now we have a special unit for prems, and a great many more are reared, but the improvement is mainly in the low birth-weight group. In my opinion too many of them are physically or mentally defective, and some of them are both, but this is not reflected in the statistics, so official policy is for more and better prem units.

I expect you know the unit at Underwater. Not very beautiful, not very convenient, but entirely adequate for its purpose; yet despite the desperate financial situation we are having money forced on us to improve it. Very nice no doubt, but there are other things crying out to be done and our medical committee spent hours making a list of priorities. They put the new prem unit almost at the bottom of the list; but our advice was ignored and it has come out at the very top, ahead of such measures as reasonable means of controlling infection in the general wards. Apparently it is more important to have a nice-looking adjunct to the maternity department than to be able to wash a bedpan or one's hands in a medical ward. In Utopia everything would be done for everyone, but ours is an imperfect world where the National Health Service cake is too small for the appetites demanding it. Do we share it out to the best advantage?

* * *

The immediate difficulty with imperfect medical services is, who goes without? Let me make myself clear. I am not advocating euthanasia, but we must realise that when everyone cannot have everything *somebody goes to the wall* and their lives are often placed in jeopardy. So far the National Health Service has been on a basically non-expanding budget, and any advance in service and expenditure at one place means a corresponding contraction somewhere else. I am not certain that the expansions and contractions are always governed by common sense. The deep-therapy unit at St. Neptune's Hospital at Underwater, for instance, serves a large area. Nominally it has 60 beds, but in fact every one is closed and the department has to carry on as best it can with the half-dozen it manages to borrow from the general ward. This means that the department has a long waiting-list; by no means all the deep-therapy cases are hopeless, and for some prompt admission is the only hope. Yet while the beds at the deep-therapy unit have been closed the geriatric department at St. Poseidon's annexe across the way has grown steadily. Now the best geriatric units—St. Poseidon's is one of them—reable many old people and allow them to return to their own homes. But you know as well as I do that others are used as expensive dumping-grounds to relieve relations of a burden they no longer wish to bear. Is it, in principle, right that geriatric units should expand

while deep-therapy units shrink? Should we really devote so much of our resources to rearing new citizens who will never support themselves, and on prolonging the lives of others who can only hope to leave their beds for their graves?

Put this way the problem seems simple because it is impersonal, but as individual doctor and patient it is not so easy. The hemiplegic of 85 with pneumonia—do you give antibiotics? The 90-year-old with a fractured neck of femur—do you pin? The mentally defective with nutritional anæmia—do you transfuse? The mongol with a congenital heart—do you operate? The murderer who has nearly but not quite committed suicide—why do we struggle to save his life? These are problems that any doctor may have to solve, with no lead but his conscience.

* * *

Personally I don't know the answer, and where can we look for guidance? Possibly the Church, and I have discussed the matter with some clergy. Not unexpectedly I got different views. They also do not know the answer and were much worried by my questions. I think they all more or less agreed that death was not always evil; that God called many home in His own mysterious way and it was not necessarily our duty to interfere. I am afraid this doesn't get us much farther, as none of them would say when we need not interfere. It looks as though we shall have to work it out ourselves, because one thing seems certain—if we pursue our present course we must spend more and more on the care of mental defectives, on the training of spastics, and on geriatric beds, while the services for the working population are pressed ever tighter. Nor is this harsh choice due to niggardliness, for (even allowing for the wizened worth of the pound) we are spending more on the National Health Service today than we spent on all private and State and voluntary services before the war.

If an aged body dies at home for lack of a hospital bed, questions are asked in Parliament. But if the father of young children is allowed to get inoperable carcinoma for the same reason, nobody seems to care and nothing is done. Which of these two is the more worthy to be saved when both cannot be? That is our dilemma. Is it right for us by rearing more prems to increase the number of mental defectives, and by offering elaborate and expensive treatment to prolong the stay in hospital of the aged? That, too, is our dilemma, for we must remember the human aspect and think of Dr. A fighting tooth and nail to get his patient admitted, and the relations writing to their M.P. if he fails. Who can blame either of them?

In politics one can argue for laissez-faire or planning, and, through general elections, try periods of each in turn. Medically we have the same choice, but ours is between planned and unplanned killing. I know it sounds ugly, but we make it none the prettier by refusing to face it. At the moment, we may not be very conscious of the problem, but if our present trends in birth and death rates continue, an ever-decreasing proportion of workers must support an ever-increasing proportion of physically and mentally infirm. In the long run money talks, and here it is likely to shout from the house-tops.

* * *

How then do we find a solution? Is it to be by an edict of the Church, an Act of Parliament, or our own consciences? If by the last, what shall we gain if everyone goes a different path? One day, maybe, the National Health Service will be unlimited, and then there will be no problem. But long before that chronic hardupness may force us to clear our minds and make this harsh choice. The trouble is that most of us feel more guilty about the unpleasant results of our actions than about the equally unpleasant results of our inactions.

Yours sincerely,

JAN STEWER.

In England Now

A Running Commentary by Peripatetic Correspondents

WE are a family of spotters. My small son is an enthusiastic train-spotter; my wife is an expert clothes-spotter ("Cerise overcoat with roll collar—winter of '51 for certain!"); I myself am a spotter of Peripatetic Correspondents.

My first identification hardly counts, for a friend of Dr. A gave him away to me. Nevertheless I think I might have been able to spot the enthusiastic young regimental medical officer as half of the student partnership that produced a remarkably well-documented article on peptic ulceration. My heart was saddened when I heard that Dr. A was one of the gallant band who fell at the approaches to Walcheren.

Sir B, that prince of after-dinner speakers, was easy enough to spot. Who else, even among the senior physicians at our teaching hospitals, produces those rolling periods, liberally strewn with latin tags? Even more of a "give-away" than what Sir B himself would term a "propensity for polysyllabism" is his dislike of abbreviations and of that timid adjective of qualification, slight. I fancy the title he invented for himself—Lord Bane of Examinees—would not be inappropriate for Sir B.

Dr. C is one of my prize spots. I wondered for a long time who was the preclinical teacher in one of our ancient universities, with a Mrs. 'Arris-like friend. Then one day he disclosed that his mythical friend had recently been put up, in some discomfort, at a red brick university. When my Diary of Scientific Events showed me that the Anatomical Society had lately spent a few days at Manchester, the field was narrowed, and subsequent reports of an American tour confirmed my guess. I wonder whether Dr. C lately achieved a record when he had a signed article and an anonymous peripatetic paragraph in the same issue of *The Lancet*.

Dr. D is a fairly definite spot, unless several correspondents have an identical terse wit. He is obviously a pathologist in one of our northern cities, if, as I suspect, he is the man who visited the Chelsea flower show and is also the perpetrator of the "Skinsey report" joke. A Lewis Carroll parody gave me the necessary clue to Dr. D's identity. How are you getting on, John?

As for the rest of the regular contributors, I have suspicions only and I confess that my clues are flimsy things indeed. Do other contributors besides myself conceal their identities by including totally misleading family histories?

* * *

It is only a few days since our caterpillar moved in, but already he dominates the household. He lives in a glass plum-pudding jar beside the goldfish, on the ledge behind the kitchen sink. He will, we are given to understand, eventually become an elephant hawk moth, but that is in the distant future. For the present he is three inches long and proportionately stout, immensely inquisitive but easily frightened. Every time we breathe on him he rolls over and goes into a convulsion. He has, nevertheless, an enormous appetite, and it is this that has been worrying us. He was found on a clarkia, and so far we have managed to sustain him on leaves from the solitary specimen in our garden, which is now almost razed to the ground. We have tried to tempt him with michaelmas daisy, but he thought nothing of that. Lilac leaves gave him a mild gastro-enteritis, and he would not touch chrysanthemum. In the hope that he might have exotic tastes we tried him with nasturtium and mint, but the fumes were nearly too much for his delicate constitution, and we had to take out the leaves quickly. In desperation we looked up a handbook. "Food-plants," said the handbook concisely, "Willow-herb (*Epilobium hirsutum*), Water bedstraw (*Galium palustre*). Also reported on Enchanter's Nightshade (*Circaea lutetiana*) and various kinds of bedstraws. In captivity," ended the handbook a trifle censoriously, "it devours Fuchsia greedily."

So there we are. There is no willow-herb for miles, bedstraw to us is just something we shove into our palliasse, and we don't think that blue thing in the middle of the herbaceous border can be enchanter's nightshade. There remains our fuchsia—a tender and backward plant destined in ten years to be the glory of our southern

exposure. We just couldn't do it, not even for a friend. Yesterday, after an impassioned argument lasting well over an hour, we agreed to give him just two leaves, Daddy, only two, to test the veracity of the handbook. When we looked in this morning with our breath suitably bated we found ourselves sharply aligned against the handbook. He had not attempted to eat any fuchsia, and the poor remnants of our clarkia had been insufficient to satisfy him. His head waved at us pathetically. There was only one thing to do. Tonight, after his proprietor was safely in bed, we took him and set his feet firmly but stealthily on the clarkia at the bottom of a garden we know just along the road.

* * *

Had my fellow peripatetic (Sept. 25) made a close study of family gremlins, who add succulent morsels of news to papers about to be used for fire-lighting, he would have discovered that they always work in pairs—gremlins A and B being allocated to families X and Y respectively. Where does your correspondent think his gremlin gets these extra titbits to insert in his papers? Out of the papers of his "partner" family of course. Has your correspondent never wanted to refer to that extract on a new treatment he saw quite clearly last Thursday week? ... Dr. Y, busy wrapping up the potato peelings, is reading it out to his wife at that very moment.

* * *

Most of us run our eyes down the Births, Marriages, and Deaths column as a matter of habit. The reasons vary with our age-group, though perhaps we may be loth to recognise masochism. Fewer perhaps wander from the vital urgency of those three strident trumpets, sounding above the hurly-burly of daily life, to the tranquillity of In Memoriam. But I must confess to a partiality for that postscript limbo. I marvel at the narrowness of the margin between sentiment and sentimentality. I am strangely moved sometimes by the echo of a stranger's grief, by the constancy of memory.

Our local weekly newspaper's In Memoriam reflects a true cross-section of my practice, and reminds me of triumphs and failures. That meningitis from otitis media, the neurosis that was really periarteritis nodosa, the carcinoma that came too late. A wealth of clinical record condensed into twelve-and-sixpence-worth of three lines or less. The column in the national daily spares my conscience such personal disquiet. I realise with surprise that some familiar figure died a couple of years ago, and I am equally mortified at my ignorance of his passing. I feel strangely self-satisfied at being on nodding terms with the names of the great, and then promptly humbled to realise the unimportance of their worldly greatness. Some of the commemorations are beyond my understanding. The one that honours each year the memory of the silent screen's greatest lover; the annual Plantagenet entry that laments the death of King Richard the Third at Bosworth Field. It is high time that historical perspective was restored by an In Memoriam notice for the little princes in the Tower. Perhaps I have missed the entry, as indeed I shall miss my own. Anonymity is a sober shroud.

* * *

My inoculation reaction had subsided, but in my ears still rang the voices of my colleagues advising against drinking water in the French countryside, as I settled down to enjoy dinner at a hotel in Soissons much frequented by English motorists.

"Monsieur préfère quel vin?" "Un peu d'eau." "Mais non, monsieur, l'eau n'est pas potable." My school certificate French was just good enough to explain to him that I had read the reports of the local director of health thoroughly, had spent the afternoon visiting their modern waterworks, just come from the laboratory where the water is analysed regularly, and was completely satisfied. "Monsieur—ça ce n'est pas bon pour les touristes!"

Live and let live. My hotel terms are now inclusive of wine.

* * *

I have long had the impression that the further north you go, the stronger the alcohol becomes. Now I am sure. Inside the Arctic Circle this summer I came across a Finnish doctor who had just returned from Paris. "Of the lighter French wines," he declared, "I prefer the one they call Courvoisier."

Letters to the Editor

FOOD TABOOS

SIR,—The failure to make use of the available food resources (stressed by Dr. Trant in her very interesting article of Oct. 2) is recognised as one of the major causes of malnutrition in many parts of the world; and the complexities of the problem of how to "battle against superstition" are being given much thought by medical, educational, and anthropological workers.

In 1948 Prof. Margaret Read described[1] just how complex the problem is:

> "Among most peasant peoples the growing and eating of food is closely associated with beliefs and practices concerning the supernatural, that is, with religion and magic. These beliefs and practices extend also into the field of health and disease. . . . And in order to examine a people's attitude towards disease, you will have to take the inevitable plunge into their *Weltanschauung*, to understand their thoughts about the universe, their ideas about the origin and nature of good and evil, about the motive springs of human conduct. These lie beneath the way in which people face disease and the death which may result from it, and the way they attempt to influence and control natural forces by supernatural means."

To alter practices which form part of the whole fabric of the life of a people demands more than "propaganda to teach people how to use the foodstuffs now readily available to them," as Dr. Trant suggests.

It is now recognised that people will only change their behaviour if they see the change as a means to something they themselves want. The African mother is "anxious to eat all the proper foods"; she is also anxious to keep her husband's approval and the approval of her relatives and neighbours, and to conserve or augment the family's cash resources. Among such conflicting and immediate desires, the desire for the vague abstraction, her own improved health, has to take a back seat.

It is not difficult to understand. The British mother who goes to the clinic wants her child to have healthy teeth. She is told to alter her food habits, and to give the child the "proper foods." But the habitual caries-producing foods, the cakes and sweets, have other cultural values, and the mother has other conflicting and stronger desires. She also wants her child's approval, the approval of her neighbours for her skill at baking, and the ease of handy rewards and bribes. It would take great courage on the part of a British mother to break with her cultural customs and withhold the traditional "feast foods," the iced-cake and sweetened buns, on the annual birthday party. How much more difficult it must be for an African mother to break with tradition, when the slightest variation from the usual may expose her to the accusation of having "put magic" in the food she serves her husband or her family.

So the African and the British mothers continue in the traditional food habits which satisfy their most immediate and pressing desires—to the detriment of their own and their children's health.

But, as the missionaries and other workers know, with time, patience, and the use of sound educational approaches, food and other health practices can be changed. The social scientists who have observed the attempts of health and agricultural workers to induce people to change their traditional ways of doing things, have described the conditions which encourage or inhibit the adoption of new practices.

Increased understanding of how the mechanism of the learning process works is altering the whole approach to education. The didactic methods of the past are being replaced by others which take into account the motivating forces of the interests, and the self-interest, of the individual, the influence of his own background of

1. Read, M. Proceedings of 4th International Congress of Tropical Medicine and Malaria. 1948; vol. 2, p. 1196.

knowledge, rich and strange, into which the new knowledge must be fitted, and the power of the group to reinforce or destroy any decision to do things differently.

But such knowledge is not reproduced in the textbooks and journals regularly studied by medical and health workers, and it takes a good deal of imagination for someone who has learned successfully by lectures, talks, and demonstrations to realise that it is perhaps the method of teaching, and not the intelligence of the taught, that may be at fault in different circumstances.

Valuable contributions to factual knowledge, like Dr. Trant's, will not be fully utilised as long as we health and nutrition workers rely on "propaganda to teach" and do not learn to educate ourselves.

My own experience, over some years, of maternal and child-health work among the varied peoples of Malaya has convinced me that the diploma in health education, now offered by London University, is likely to be, for all kinds of health workers, the most valuable post-graduate training at present obtainable in Britain.

Geneva, Switzerland. ANNE BURGESS.

HAZARDS OF SURGICAL INDUCTION OF LABOUR

SIR,—Mr. Davis and Mr. Mills (Oct. 2) appear to have overlooked the last sentence of the introductory paragraph in my article: "The purpose of the present article is not to discuss the indications for the operation, but to consider the hazards."

It was not suggested that surgical induction is not a valuable therapeutic procedure. No-one would deny that there are certain definite indications—e.g., pre-eclamptic toxæmia. But at present, when the operation is becoming rapidly more common, it is important "not to dissuade the timorous obstetrician from performing the operation" but to remind his ebullient colleague that it has certain risks. There should always be a reasonable indication before surgical induction is performed.

It has been suggested that the maternal morbidity and fœtal loss in the series would have been lower if the survey had been restricted to the more recent years. The following figures answer that criticism:

Year	No. of cases	Attributable stillbirths (%)	Prolapsed cord (%)	Maternal morbidity (%)
1928–32	182	1	3	8
1933–37	179	1	2	8
1938–42	132	2	3	12
1943–47	164	3	5	16
1948–52	186	3	4	11
1928–52	843	2	3	11

There are series with more favourable figures, but in nearly all of them the incidence of induction is much higher, although in few is it as high as the 25% reported by Miss Sandys (Oct. 2). The increased incidence in these series is nearly always due to an increased prevalence of elective induction, the most favourable group of cases.

London, S.E.1. GWILYM EVANS.

SIR,—While agreeing that surgical induction is a satisfactory procedure in carefully selected cases, I feel that further consideration should be given to one particular aspect of the problem—the criterion that the patient should be near or past term.[1] The 38th week is generally stated to be the earliest time that the immature fœtal head will tolerate a forceps delivery, and it is not commonly necessary to resort to instruments before then. Nevertheless, from time to time a forceps delivery may be required, following induction, on the not yet mature infant; one is then faced with manipulation of a fœtal skull which yields to the palpating fingers like a ping-pong ball, particularly where manual rotation is undertaken. Indeed, while, as Mr. Albert Davis (Oct. 2) so aptly states, timely induction may obviate that barbaric procedure, the difficult forceps, the mistimed induction may result in a forceps delivery no less barbaric to the fœtal skull, which may be followed only by birth asphyxia and neonatal death.

A particularly good illustration of this type of hazardous forceps delivery (though not always following mistimed induction) is provided by cases of twin labour some time from term, where the second stage is complicated by inertia. (Not infrequently in these cases labour is precipitated by or necessarily induced for pre-eclamptic toxæmia.) I have had two such cases in the last three months. In each the first baby was presenting by the vertex, arrested in the transverse position; it was delivered by manual rotation and forceps. The second was also a vertex but was deliberately turned and delivered by breech extraction. In each case the first baby was the heavier of the two (approximately 5 lb.), but was born asphyxiated and succumbed in the neonatal period, while the second (approximately 4 lb. in each case) was born in good condition and made excellent neonatal progress.

True, premature forceps deliveries following induction are generally easy. The ease may flatter but to deceive.

Crewe, Cheshire. A. W. BANKS.

1. Eastman, N. J. *Amer. J. Obstet. Gynec.* 1938, **35**, 721.

ŒDEMA AND BELL'S PALSY

SIR,—In his letter last week Dr. Muir describes what appears to be a case of Melkersson's syndrome, which may be recognised by the triad: peripheral facial palsy, often recurrent; chronic œdema of the face and lips; and deeply furrowed tongue. The palsy may be bilateral and familial but usually recovers well. The œdema is often permanent and treatment not always satisfactory with either surgery or irradiation.

Market Rasen, Lincs. M. SPENCER HARRISON.

*** Another correspondent has drawn our attention to the account of this condition given by Kettel in 1947.[1] —ED. L.

TOWARDS CLEANER AIR

SIR,—In your leader of Oct. 2 you refer to the recent report of the Air Hygiene Committee of the Medical Research Council, which deals with the bactericidal effect of indirect ultraviolet irradiation. In commenting on the disappointing result, you suggest that further analysis should at least give some clues to the epidemiological puzzle of respiratory disease.

One major difficulty in such an investigation is, as you point out, that the children spend proportionately so little time in school exposed to the bactericidal agent. The same difficulty is met with in any group employed for a limited period and exposed to infection of unknown virulence during the rest of the twenty-four hours.

In spite of this difficulty it has been shown by controlled experiments, extending over five years and involving some hundreds of office-workers in Dublin, that exposure to hexylresorcinol, diffused as a continuous-flow aerosol by means of the 'Aerovap' apparatus, is followed by a definite reduction in absenteeism caused by what are commonly regarded as airborne respiratory diseases. It has also eliminated these diseases from the monkey-house in the Dublin Zoo, where a static population offers a perfect opportunity for demonstrating the value of the agent.

You also mention that "relatively few diseases can be spread entirely by droplet spray suspended in the circulating room air." May I recall the letter by Mr. Gissane[2] in your columns last year in which he refers to "the more common and trivial infections" which "are known to increase significantly the period of inpatient treatment . . . and to add to the risks of cross-infection in the ward?"

Dublin. CHARLES DICKSON.

1. Kettel, K. *Arch. Otolaryng., Chicago*, 1947, **46**, 341.
2. Gissane, W. *Lancet*, 1953, **ii**, 1206.

AORTIC EMBOLECTOMY

SIR,—Mr. Ian Gordon's article of Oct. 9 will be of interest to every general surgeon; for, in view of the rarity and urgency of "riding" embolus, a surgeon faced with this operation is likely to find himself doing it for the first time and will have to rely on what he has read as a guide to his technique.

Having had this experience myself over five years ago[1] (the patient is still alive and well), I should like to make the following observations:

(1) The transperitoneal approach is the most direct and probably easiest.

(2) Tapes passed round the aorta and common iliac arteries are simple and efficient. They can be tied in a half-hitch over a rubber tube and controlled by the assistant.

(3) The incision should be made in the aorta itself if a healthy site can be found. Suturing of this is no more difficult than suturing a common iliac artery, and the latter carries the grave risk of narrowing and thrombosis, as Mr. Gordon mentions.

(4) The aorta should be incised with the iliac tapes loose. Clot will not be lost down the limbs, since the blood-flow (which is small with the aorta controlled) will come upwards from the ischæmic area.

If the iliac tapes are tightened first there is a risk of shearing off "tails" of clot below them, with subsequent difficulty in extraction, or even failure to relieve the block in a main artery. The function of the iliac tapes is to give a completely dry field for suturing the aorta, and to prevent clot being swept downwards when the aorta is momentarily released to prove its patency.

Northampton. E. E. T. TAYLOR.

TUBERCULOUS MENINGITIS

SIR,—You are at pains in your leader last week to point out that for diagnosis and treatment this disease is an emergency, and that "any insidious illness with headache and drowsiness or irritability may be due to early meningitis." Rather surprisingly you do not mention that the disease is almost 100% preventable, and that the time has come—has long come—to start a national campaign for the B.C.G. vaccination and subsequent follow-up of all infants.

London, S.E.6. E. H. R. SMITHARD.

PENETRATION OF HAIR INTO BREAST

SIR,—The recent correspondence on the penetration of hairs into the foot prompts me to record the penetration of a hair into another unusual site—into the breast via a congenitally "retracted" nipple. This event led to a chronic induration in the breast and its eventual removal by radical surgery.

Radical mastectomy was performed in a married woman of 47 for a hard mass in the right breast with retraction and elevation of the nipple. When the breast was sectioned for pathological examination, a chronic abscess cavity was found and the rest of the breast tissue was much tougher in consistency than normal. Microscopical sections showed abscess formation, fat necrosis, and diffuse periductal mastitis; there were also fibroadenosis and two small hyalinised fibroadenomas. No carcinoma was found in eight blocks of tissue.

The whole of the depressed nipple was taken for section, because at this time nipples were being sectioned routinely to discover if congenital "retraction" had any distinct microscopic features. This nipple had a hair lying in a small abscess cavity just beneath the zone of unstriped muscle. Serial sections revealed that the hair was lying in a duct, the epithelium of which had been destroyed by inflammation; it was traced to a ragged termination, just outside the surface opening of the duct. The nipple area showed the superabundant sebaceous glands which seem to be a feature of congenital "retraction," though here the retraction was almost certainly increased by fibrosis consequent upon inflammation.

1. *Brit. J. Surg.* 1951, **39**, 280.

The patient was seen in convalescence: the other nipple was depressed and had always been so. Another point of interest was that a fibroadenoma had been removed from the excised breast twenty years before.

It is anatomically improbable that the penetrating hair arose in a follicle associated with sebaceous glands and not revealed in the sections. It would seem, therefore, that penetration by hair is a hazard of congenital "retraction" of the nipple. Perhaps others may have experience of this complication.

King Edward Memorial Hospital, London, W.13. W. S. KILLPACK.

ÆTIOLOGY OF MONGOLISM

SIR,—Professor Penrose, in his paper of Sept. 11, notes that mongolism occurs "in African, Indian, Chinese, and Japanese populations, though the incidence appears particularly high among Europeans."

During the past eight years I have seen cases of this condition in children of the following nationalities: Egyptian, Pakistani, Indian, Thai, Indonesian, Hong-Kong Chinese, as well as in Europeans, North Americans, and Jamaicans.

Perhaps of more interest is the fact that no children with this form of mental deficiency were seen during a period of several years' pædiatric experience in Nigeria, working among an almost unmixed African population. By contrast, mongolism, while not as frequent as in Europe, is not uncommon amongst mainly Negro children in the much more intermixed populations of Jamaica and the Southern States. In a recent paper I have suggested that this may indicate that whatever factor is responsible may be acquired from non-African—that is Caucasian and Asian—sources.[1] In any case, further scientifically conducted surveys of the racial incidence of this condition might produce further clues to its ætiology.

All-India Institute of Hygiene and Public Health, Calcutta. D. B. JELLIFFE.

LIABILITY FOR ACTS OF DEPUTY

SIR,—In my opinion Dr. Eimerl is absolutely right, in his letters of Sept. 25 and Oct. 16, in pointing out that on the reported facts the recommendation of the Devon and Exeter Executive Council[2] is ridiculous. It is reported that the patient's messengers were told that the doctor's partner was deputising for him at the time advice was sought. What more can a G.P. do than arrange for another G.P. to stand in for him (on a reciprocal basis probably) when he is not available for a reasonable cause to attend patients on his list? Indeed this is recognised in para. 8 (9) of the Terms of Service[3] which states: "In the case of two or more practitioners practising in partnership or as a principal and assistant, treatment may at any time be given by a partner or assistant of the practitioner in whose list the patient is included, instead of by the practitioner in person, if reasonable steps are taken to secure continuity of treatment."

The real trouble is that para. 8 (8) of the Terms of Service, which are binding on an N.H.S. principal, makes him "responsible for all acts and omissions of any practitioner acting as his deputy or assistant in relation to his obligations under these terms of service." The medical protection societies, in conjunction with the General Medical Services Committee, are pressing the Minister of Health for an amendment of this unfair and illogical rule to provide that a principal who has made reasonable deputising arrangements with another principal (who is on the list of an executive council and therefore can be penalised if found to be in breach of the

1. Jelliffe, D. B. *W. Ind. med. J.* (in the press).
2. *Manchester Guardian*, Aug. 19, 1954; see *Lancet*, Sept. 11, 1954, p. 549.
3. N.H.S. (General Medical and Pharmaceutical Services) Regulations, 1954, First Schedule. S.I. 1954, no. 669.

Terms of Service) is not put to the trouble, expense, and inconvenience of having to answer such a complaint as that which provoked this correspondence.

ALISTAIR FRENCH
London, W.C.2. Secretary, Medical Protection Society.

HYSTEROSCOPY IN EARLY PREGNANCY

SIR,—In the past year I have done hysteroscopy in three cases where the patients were to have therapeutic abortion.

McCarthy's panendoscope was introduced through the uterine cervix. Two of the patients were given general (ether) anæsthesia, and the third local anæsthesia. The fœtuses were 19, 21, and 10 cm. long. The space between the uterine wall and the membranes was examined with ease up to the site of the placenta, which was easily detected. The amniotic cavity was inspected after puncturing the membranes. In the two cases where general anæsthesia was given no fœtal limb movements were observed; the umbilical vein was dark red and did not contrast noticeably with the umbilical arteries. In the last case, where local anæsthesia was given, vigorous limb movements of the fœtus were seen, and it was observed to swallow more than 30 times per minute; the umbilical vein was bright red, contrasting strongly with the dark blue umbilical arteries. When the umbilical cord was compressed limb movements and swallowing ceased within two minutes.

Women's Clinic, Sabbatsberg Hospital, Karolinska Institutet, Stockholm, Sweden. BJÖRN WESTIN.

BASIC ANATOMY

SIR,—In the notice of our book in your issue of Oct. 9 you allege that it is not "entirely free from error," citing as the only example the functions attributed to cutaneous nerve endings. We have checked them with those given in the latest editions of standard works, including Gray, Cunningham, Morris, Le Gros Clark's *The Tissues of the Body*, and monographs on neuroanatomy, such as those of Ranson and Clark, Larsell, Mettler, &c., and we find that they give the same attributions. To use a cliché, if we are wrong, we err in excellent company. An italicised paragraph in the 1954 Gray (p. 912) is worth quoting:

"Although, in the preceding paragraphs, an endeavour has been made to associate a particular function with each end-organ, it is necessary to warn the student that this aspect of the problem is so difficult to explore that the evidence at present available is by no means conclusive."

Your arithmetic reveals that your scrutiny of the book was superficial. Otherwise you would have noted that, to simplify block-making, many figures contain more than one illustration showing different points, and that all the figures illustrating various features or relationships of the kidney, heart, and vessels are not confined to the chapters on the urogenital and vascular systems: we are not referring to duplicate figures, although for the convenience of readers a small proportion of figures are repeated—a very common practice in most textbooks. These easily verifiable facts, providing entirely different totals from those you give, will not be commented upon further, apart from suggesting that it is desirable, when criticism is made, to be sure that it is based on accurate information.

G. A. G. MITCHELL
Anatomy Department, University of Manchester. E. P. PATTERSON.

*** If our correspondents' book had contained a qualifying statement such as they now quote from Gray, we should not have objected to what they said about the functions of end-organs. The distinction between "figures" and "illustrations" makes a difference which we gladly admit; but it does not we think invalidate our view that the illustrations have a neurological bias.—ED. L.

HAZARDS OF BLOOD-TRANSFUSION

SIR,—Some seven or eight years ago, I set this as an examination question. Of the hundreds of prospective M.R.C.P.s who tackled it along the lines of Dr. James's comprehensive article last week, one (only one!) considered the hazards run by *the donor*. Starting with local trauma, hæmatoma, sepsis, even septicæmia, he proceeded to the consequences of faintness on the way home, a fall, a possible fracture, a fatality from a misunderstanding with a motor bus.

I do not remember if he passed but I hope he did. For although his forthright realism may have labelled him a bit of an ass who failed to strike the happy mean between the improbable and the obvious, it certainly warmed the heart of at least one of his four examiners.

London, W.1. ADOLPHE ABRAHAMS.

A HOSTEL FOR RHEUMATIC PATIENTS

SIR,—Some months ago Bracken Hill House, Northwood, Middlesex, was opened as a hostel for sufferers from early rheumatic diseases.[1]

It is intended for those who live too far from a rheumatic centre for daily treatment, as somewhere for them to stay and be looked after during appropriate early diagnosis, guidance, and treatment at nearby Mount Vernon Hospital. It is well known that patients with active rheumatic disease do better if they can rest and relax completely during their treatment, away from the worries and responsibilities of their daily round, whether it be in business, industry, or their own household chores.

This venture was started by the British Rheumatic Association and sponsored by Lord Nuffield. All who saw it or heard of it applauded the concept and spoke of the tremendous need there was for it. It was cited as the perfect British compromise between private charitable enterprise and the State service.

The benefits to those patients who have already visited the hostel have been most encouraging, but the response in numbers has been disappointingly small. We can only assume that our efforts to publicise the experiment in the press and elsewhere have not reached a wide enough public. In particular, family and industrial doctors, who are most likely to send us patients, have not heard of the scheme nor appreciated the help we can give their rheumatic patients.

The charges are reasonable: 7 guineas a week for a single room, 5 guineas a week for a double room, and £4 15*s*. a week for a room with three or more beds. There are no other charges whatsoever as all treatment at Mount Vernon Hospital is free under the National Health Service.

This letter is written in the hope that anyone interested will write for details and application forms either from the Matron, Bracken Hill House, The Woods, Northwood, Middlesex, or direct from the British Rheumatic Association, 11, Beaumont Street, London, W.1.

Northwood, Middlesex. MARTIN STRATFORD
DUDLEY M. BAKER.

AGAMMAGLOBULINÆMIA

SIR,—Since the publication of the article by Bruton[2] on agammaglobulinæmia, I have investigated the gamma-globulin content of serum in several children who have had recurrent infections. I was therefore very interested to read the article on this subject by Dr. Grant and Dr. Wallace in your issue of Oct. 2.

In 12 children whose serum has been submitted for electrophoresis (10 of them to Dr. D. W. Barritt, of the Bristol Royal Infirmary, for whose help I am most grateful), the gamma-globulin content has been normal.

Of these patients, 3 were alleged to have had two attacks of chickenpox (the serum of 1 of these was kindly sent for estimation of gamma-globulin content by Dr. S. I. Abrahams, general practitioner, of Leytonstone). 3 patients had repeated respiratory infections and 1 of these now has bronchiectasis. 2 had fibrocystic disease of the pancreas, 1 of them with multiple staphylococcal infections. Another had chronic skin disease associated with hepatosplenomegaly, but has

1 See *Lancet*, 1954, i, 527.
2. Bruton, O. C. *Pediatrics*, 1952, 9, 722.

now recovered. A baby had gangrenous areas of the skin, akin to cancrum oris, involving the buttocks and face. Another baby had recurrent sepsis associated with lymphadenopathy, splenomegaly, and an unexplained failure of production of polymorphonuclear leucocytes. Finally, 1 child has had bacteriologically proved pneumococcal meningitis eight times; despite meticulous search, a local focus of infection has never been found.

Although these are only negative findings, I feel it may be of interest to record a variety of recurrent infections in childhood in which the serum gammaglobulin was normal.

Bristol Royal Hospital for Sick Children. BERNARD LAURANCE.

PERIPHERAL GANGRENE IN HEART-FAILURE

SIR,—In their article last week Dr. Bird and his colleagues state that there is a paucity of clinical reports of the condition which they describe. A report was published by myself and Dr. Henderson in 1951.[1] In it we described two cases of peripheral gangrene both occurring after cardiac infarction. One case was fatal but in the other, a woman with Raynaud's disease, recovery occurred after extensive loss of digits. We also mentioned several other case-reports which the authors have omitted from their references. Since publishing our article we have seen three or four further cases of this condition occurring in severe heart-failure from a variety of causes.

Newcastle upon Tyne. W. G. A. SWAN.

TREATMENT OF PLANTAR WARTS

SIR,—Referring to Dr. Grant's letter of Oct. 9, I cannot help feeling just a little apprehensive about one aspect of his technique. It is that "the child is encouraged to pick off the dead skin with his fingernails." It has been my experience that such manipulation of warts can lead to their transmission to the fingers and even under the nail, where they are more resistant to treatment.

I am reminded of plantar warts which flourish under various treatments at minor-ailments clinics. One particular method was to apply castor oil every night for a week and then subject the child to the pain of plucking out the filaments of the growth with tweezers. Surely treatments and techniques ought to be more rigid and antisepsis more stringent.

West Wickham, Kent. B. DALTON.

AIRMAN'S PTOSIS

SIR,—Recently I saw a patient who, quite apart from his present illness, had unilateral ptosis, which he explained as follows.

In the 1914–18 war he served as a fighter pilot. The wearing of a helmet and goggles during flight was compulsory, but sometimes, when the need to get into the air was very urgent, pilots used to fly without them. One day, after flying with a bare face, he landed to find his left upper eyelid drooping. His medical officer, chancing to meet him soon afterwards, said: "I know what you've been doing—flying without a helmet. I've a good mind to put you on a charge." In other words, the condition and its cause were well known at that time.

A number of his fellow pilots got the same symptom in the same way, but, so far as he can recall, recovery was rapid and complete in every case except his own, in which there was no recovery.

I have made a search (not, I admit, an exhaustive one) in current textbooks of ophthalmology, in the official medical history of the 1914–18 war, in two books about eye injuries of that war, and in indexes to journals of that period, without finding any mention of this form of ptosis. Can any of your readers throw light on it, and provide references to publications about it?

London, S.W.20. JOHN PENMAN.

1. *Brit. Heart J.* 1951, **13**, 68.

APOTHECARIES AT U.C.H.

Mr. T. D. Whittet, chief pharmacist, University College Hospital, London, W.C.1, writes: "I am making a collection of photographs of former apothecaries of this hospital and have been unable to obtain the following:

John Hogg (in office 1828–34).
John Taylor (1834–41), later professor of medicine, University College Hospital, and physician, Huddersfield Royal Infirmary.
Charles Percy Croft (1846–48), one of the founders of the Royal (formerly Great) Northern Hospital.
Thomas Hillier (1853–56), later physician to the Hospital for Sick Children, Great Ormond Street.
William Price Jones (1856–59).
Edwyn Andrew (1859–61), a founder of the Shropshire and North Wales Eye and Throat Infirmary.
Walter Rickards (1866).
Charles Edward Squarey (1866–68), later physician to the Hospital for Women and Marylebone Dispensary.

"If any of your readers could lend me photographs or portraits which I could have copied I should be very grateful."

Obituary

ARTHUR WELLESLEY FALCONER

C.B.E., D.S.O., LL.D. Cape Town, LL.D., M.D. Aberd., F.R.C.P.

Dr. Falconer, whose death on Sept. 26 we lately announced, was a former vice-chancellor and principal of the University of Cape Town. He was also the first occupant of the chair of medicine in its medical school—the first to be set up in South Africa. His appointment in 1919 to this key post was a wise choice, and South Africa owes him much as a physician as well as a teacher and administrator.

He was born at Stonehaven, Aberdeenshire, in 1880, and he studied medicine at the University of Aberdeen where he graduated M.B. in 1901. After continuing his studies in London, Berlin, and Vienna he took his M.D. with honours in 1907. The same year he also took the M.R.C.P. Soon afterwards he was appointed to the staff of Aberdeen Royal Infirmary. But his work there was interrupted by the 1914–18 war during which he served with the Salonika Army and became consulting physician to the Forces. For his services he was appointed D.S.O. in 1918 and C.B.E. in 1919.

In 1919 he accepted the chair of medicine at Cape Town, and a measure of his success in his new post and his new country was his appointment to the vice-chancellorship of the university in 1938. He held this office during a difficult period, but his able guidance and wise counsel enabled the university not only to maintain its academic standards but also to adapt itself to post-war problems. His own university gave him the degree of LL.D. in 1941, and in 1948, after his retirement, the University of Cape Town also conferred upon him this honorary degree.

A colleague writes: "Professor Falconer was a forceful and dynamic personality. The material of his stimulating lectures was sound, scientific medicine, based on solid principles, which has stood the test of time and change. Medicine has had a chequered history of fads and fancies and fashions, but the medicine he taught in 1920 is fundamentally the medicine of 1950. He would not accept what was not reasonable and logical even though contained in all the textbooks. He used the pharmacopœia as we do today, not as it was generally followed in 1920.

"He was an exceptionally fine all-round physician, and in Macedonia he had gathered wide experience in the practice of tropical medicine. Cardiovascular diseases were his special interest, and for his students that subject held no difficulties. They also found neurology easy, and nothing mysterious in hæmatology: he loved the hæmatological slide, and everyone working with him became familiar with blood-cells and their meaning. The ophthalmoscope was not reserved for the special case, and examination of the urine was not a special investigation. Above all he stressed proper history-taking. Nothing escaped his keen observation. He went straight to the core of the matter, marshalled the facts reasonably, and drew logical deductions. His students, with their instinctive flair for the appropriate name, called him 'die Oubaas,' by which they meant that they held him to be the father of the medical school."

Dr. Falconer leaves a widow, a son, and a daughter.

Notes and News

THE COLOMBO PLAN

AT a meeting of the Royal Empire Society on Oct. 14, Lieut.-General Sir Bennett Hance, medical adviser to the Commonwealth Relations Office and formerly Director-General of the Indian Medical Service, discussed the medical implications of the Colombo Plan. Sir Saville Garner, deputy under-secretary of State in the Commonwealth Relations Office, was in the chair.

The Colombo Plan for coöperative economic development in south and south-east Asia was prepared by a Commonwealth consultative committee, which included representatives of Australia, Canada, Ceylon, India, New Zealand, Pakistan, and the United Kingdom.[1] Much of the medical work involved comes under the "technical-assistance scheme"; and Sir Bennett outlined some of the many ways in which help was being given to countries in medical need—both for the immediate combat of disease and malnutrition and for the future development of preventive and curative health services. Much informal consultation took place with representatives of the World Health Organisation and others concerned in this great task. It was no part of the plan to suggest to recipient countries what they should do: they themselves decided their most urgent needs and then asked for assistance. So requests could be considered only from the governments of the countries concerned, not from individual organisations within those countries.

Sir Bennett illustrated how great were the medical wants of many of the Asian countries (Burma, for example, had 1 doctor for every 26,000 of her people). One of the things that was being done to improve matters was the provision of specialists: on the one hand, experts were sent out who could stay a few months and put the local authorities on their best course; on the other, postgraduates from the Asian countries were being trained so that they could return home as teachers and bearers of new ideas. A great deal had been done along these lines and much more was contemplated. To take one example, Ceylon was lately a country where tuberculosis often meant for the victim a lingering death in a lazaretto or his own home; and fear of poverty made him hide his illness. Now, thanks to the stimulus provided by advisers who went to Ceylon under the technical-assistance scheme, Ceylon was attacking tuberculosis. Two British teams had already worked there for six months and a third was now starting; this help would continue until the Ceylonese were able to take complete control of the antituberculosis programme for themselves, when their doctors, nurses, and technicians had finished their special training. The Ceylon government had readily accepted the proposals of the advisers, and the means to put them into effect were soon forthcoming—Australia offered money, New Zealand nurses, and the United Kingdom training facilities. There were good hopes that with B.C.G. vaccination and in other ways the burden of tuberculosis in Ceylon would be much relieved. Two British advisers who had been prominent in this part of the Colombo Plan were Dr. J. W. Crofton, professor of tuberculosis at Edinburgh University, and Mr. Donald Barlow, surgeon to the London Chest Hospital, who was present at last week's meeting.. If the Ceylon experiment succeeded, Sir Bennett declared, other countries would be bound to follow suit.

This is only one of the many ways in which, under the Colombo Plan, the force of new knowledge is being brought to bear on old enemies. As Sir Bennett observed, he had time for no more than a sketch of what had been done and a hint of what was in prospect. But his story was quite enough to show the great achievements of those who have caught the spirit of this chivalrous plan and turned it into action.

INTERNATIONAL MEETING OF WOMEN DOCTORS

THE Medical Women's International Association met at Gardone, Italy, in September, when Dr. Ada Chree Reid (U.S.A.) handed over the presidency to Dr. Jolanda Tosoni-Dalai (Italy). Over 300 women doctors took part. The largest contingent was from Italy; but the members from Germany and Great Britain were nearly as numerous, and the Nordic countries were well represented. In all, twenty-three countries were represented. Of the five scientific sessions, the first was allotted to distinguished Italians, and the next three were all on the medical and psychological aspects of the menopause. For Great Britain Dr. Joan Malleson sent a paper on changes of character at the menopause, and Dr. Dorothy Lancaster spoke on dermatoses of the menopause. The last session was devoted to the problems of very early marriage.

1. See *Lancet*, 1950, ii, 808.

STUDY TOUR OF HOSPITALS IN FRANCE

IN May of this year 150 members and guests of the International Hospital Federation, representing 15 different countries and most sections of hospital administration, made a fortnight's study-tour of hospitals in France. They visited more than 20 hospitals and allied institutions in 13 large centres, and attended numerous receptions and other social functions. A report of the tour may be had from the hon. secretary, the International Hospital Federation, 10, Old Jewry, London, E.C.2, price 7*s*. 6*d*. to members, or 10*s*. 6*d*. to non-members.

University of London

At recent examinations the following were successful:

M.S.—A. G. Riddell.

D.C.P.—Barbara J. Arnold, Amtul Hafeez Chaudhri, G. I. Frank, Edith E. French, Franz Gabl, Lena Jayant Gajjar, F. C. Harris, J. T. Hughes, M. J. Karnovsky, Priscilla S. Kincaid-Smith, Shirley M. Lewis, J. H. Little, Louis Manoim, Mankayarkarasi Navaratnam, J. W. Nicholas, Monojmohan Roy, J. B. Selkon, Balwant Singh, E. E. Vella.

D.P.H.—Neamat Jabir Al-Chokhachi, Ghulam Haidar Khan Niazi.

University of Leeds

The annual dinner of past and present men students of the School of Medicine will be held in the Metropole Hotel, Leeds, on Friday, Nov. 26, at 7 P.M. Tickets (one guinea) are obtainable from Mr. D. J. Godfrey, hon. secretary of the dinner committee, School of Medicine, Leeds, 2.

Royal College of Physicians of London

On St. Luke's Day, Oct. 18, Sir Charles Symonds delivered the Harveian oration. Afterwards the Moxon medal was presented to Dr. J. L. Gamble and the Weber-Parkes prize to Mr. H. Morriston Davies.

In presenting Dr. Gamble, the Registrar said that it was from Johns Hopkins University that the first of those studies which had given him an international reputation appeared. At that time the treatment of epilepsy by starvation ketosis was attracting much attention and, in the course of investigating the metabolic effects of this régime, Dr. Gamble made classical contributions to our knowledge of acid-base equilibrium and the concept of fluid compartments in the body. Later from his small laboratory at Harvard University there flowed a steady stream of scientifically immaculate work. Much of this was summarised in his syllabus *The Chemical Anatomy, Physiology and Pathology of the Extracellular Fluid*. This had long been one of the invaluable books of medicine; and, indeed, its method of diagrammatic presentation had become so accepted as to be distinguished by a new term—Gambelian.

Mr. Morriston Davies, said the Registrar, is one of the pioneers of chest surgery. In the early days of pneumothorax treatment he realised the necessity of obtaining complete relaxation of the lung and he devised a method of dividing adhesions. In 1912, he was the first person to perform the modern operation of lobectomy, and at about this time he was also operating on cases of emphysema (removing the costal cartilages on one side of the chest in an attempt to produce greater mobility) and performing thoracoplasty following the technique of Wilms. In 1916, he developed an infection of his hand that for six years prevented him from operating, and in that time he produced his textbook of thoracic surgery. Illness and its consequences drove him from London, and many thought from surgery for ever. But in 1922, from the more restricted field of a sanatorium in North Wales, articles began to appear, and operations were performed "by those magical hands driven by his indomitable spirit."

Postgraduate Travelling Fellowships

The British Postgraduate Medical Federation invites applications for postgraduate travelling fellowships which will enable graduates who are training as specialists in one of the preclinical or clinical branches of medicine, surgery, or dentistry to obtain experience of the methods of practice, education, and research at universities or other centres in the United Kingdom and abroad. The fellowships are the subject of an announcement in our advertisement columns this week. Further information and application forms, which must be submitted before Dec. 1, 1954, may be obtained from the Assistant Director, British Postgraduate Medical Federation, 2, Gordon Square, London, W.C.1.

Royal Institute of Public Health and Hygiene

Prof. E. B. Chain, F.R.S., will give three Harben lectures at the institute, 28, Portland Place, London, W.1, on Dec. 13–15, at 5 P.M. Professor Chain's subject is to be the Biochemical Approach to Biological Phenomena.

Royal College of Surgeons of England

At a meeting of the council on Oct. 14 with Sir Harry Platt, the president, in the chair, a resolution of condolence was passed on the death of Prof. F. Wood Jones, formerly Sir William Collins professor of human and comparative anatomy in the college.

It was announced that Sir Gordon Gordon-Taylor would deliver the next Thomas Vicary lecture, in place of the late Professor Wood Jones.

Sir Wilfrid Fish was appointed as hon. director of the department of dental science.

The Hallett prize was presented to G. S. M. Botha (Cape Town) and J. D. N. Yelland (Queensland), and the Handcock prize was presented to M. J. A. Britten (Liverpool). Mr. Lawrence J. F. Youlten (Guy's Hospital) was admitted as a Macloghlin scholar.

Diplomas were granted as follows:

F.R.C.S.—J. R. Wadsworth.
M.R.C.S.—P. R. L. Lam-Po-Tang, B. H. Strangways-Dixon.

Diplomas were granted, jointly with the Royal College of Physicians, as follows:

D.C.H.—H. C. Anderson, L. G. Andrews, June Barclay, R. P. Benson, Olivia B. Z. Bikitsha, Mehroo M. Billimoria, W. F. Bindon, Emma L. Birse, Gillian M. Bryant, A. S. Bull, Winifred Burgess, A. M. Burnford, Carl Burns, Margaret E. Burns, J. F. Cleobury, Mary C. Coghlan, D. T. Crichton, L. R. Dennis, Adriana E. du Toit, Cathleen M. Elliott, Isabella C. Ferguson, G. H. Fish, Freda Fleischer, Stephanie K. Fleming, Mary L. Fraser, Una de H. Freeston, Eva A. Frommer, W. W. Ghali, B. L. Goldschmidt, Katherine A. Grice, Vimla V. Gujral, E. P. Hamblett, William Hamilton, Imtiaz-Ud-Din Hasan, D. N. Hawkins, Warren Hawkins, Judith A. R. Hay, V. B. Henry, G. W. Hickish, Margaret Hunter, H. L. Isserow, M. L. Jones, W. T. Jones, E. E. F. Keal, B. S. Laing, Seeta Lall, Fred Lees, Hyacinth I. Lightbourne, Norma A. Lloyd, Mary Lloyd-Evans, J. S. H. Lodge, W. H. McBay, K. G. P. MacKenzie, Amin Majaj, Dorothy J. Marsden, A. B. Murray, Sumedha N. Pathak, H. B. Perera, Anne T. A. Phillips, Estella G. Pollock, Moira K. M. Pratt, G. D. Rees, Shelagh M. Richards, Margaret E. Robson, N. J. W. Royston, Patricia M. Russell, George Rutledge, J. K. Saksena, Zakia S. Seif, M. H. Shnier, Simon Spiro, Joseph Teeger, A. L. Thom, Sheila Thompson, A. W. Tranter, A. C. Trevan, A. G. Wallace, Patricia M. Woolf, Joan P. Wright, Yvonne Yoffe.
D.L.O.—J. R. Wadsworth.
D.O.—M. P. N. Pande.
D.T.M.&H.—P. L. Kapur.

Faculty of Anæsthetists.—Dr. H. J. V. Morton will deliver the Frederic Hewitt lecture on Thursday, Nov. 4, at 4.30 P.M. at the college, Lincoln's Inn Fields, W.C.2. His subject will be Education and Recreation in Routine Work.

King's College Hospital Medical School

Prof. Geoffrey Hadfield will deliver the Dorothy Platt lecture at the school, Denmark Hill, London, S.E.5, on Tuesday, Nov. 2, at 5 P.M. He is to speak on Co-carcinogenesis.

London Hospital Dinner

Presiding over the old students' dinner on Oct. 14, Sir Henry Souttar said that the hospital now has 462 medical and 92 dental students, and admits 100 medical students each year from 2000 applicants. Though it was still the largest teaching hospital in the country, there had been great changes since he entered the medical college fifty-one years ago. Surrounded by a dense population the hospital then saw 1000 cases a day. As a midwifery clerk he delivered 82 babies in twenty-eight days—"a great adventure for me as well as for them, and a wonderful social experience." The residents each had charge of some 80 beds, for which they were responsible in the absence of their chiefs—though they had behind them the experience of the sisters "to whom we owe so much." Advances in knowledge had since brought to medicine almost the precision of an exact science, and doctors today had great resources; but they still required the same clinical powers, which could be won only by unremitting effort and long experience. Henry Head had taught him how much can be learnt from eyes and ears and hands, and from his chiefs he had learnt the sympathy "without which we are but technicians." Proposing the health of The Chairman, Sir Hugh Lett spoke of his talents—mathematical, medical, musical, and muscular—and of his inventions. He had devised the first eyeless needles, had invented a gastroscope, an œsophageal tube, and an operating-table, and had done much to develop the therapeutic use of radium, by the introduction of seeds and otherwise. In the British Medical Association he had served as chairman of the representative body, chairman of council, and president, and he had been vice-president of the Royal College of Surgeons. With his brilliant brain and his kindness of heart he had rendered great service to surgery, to his profession, and to his hospital.

Scottish Conjoint Board

At recent examinations for the diploma of licentiate of the Royal College of Physicians and Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow, the following were successful:

Chowdhary Munir Ahmed, Shaikh Mohammad Samie Ashraf, Mobarak Hossain Chowdhury, Robert Desmond, Hassan Fateh, Syed Abrar Husain, Sharnagat Singh Khandpur, E. I. S. Kincaid, Shamsuddin Kassam Lalani, Mackay Macleod, Akin Oladipo Maja, Mohamad Sharif Said, Noreen L. Saunders, Autar Singh Sethi.

The Healthy Child

A conference on the Healthy Child is to be held in the pædiatric department of Whittington Hospital, London (Highgate wing, Dartmouth Park Hill, N.19), at 2.30 P.M. on Saturday, Oct. 30. The speakers will include Dr. I. Gordon, Dr. Frank Faulkner, and Dr. I. C. Polhill.

Soviet Medicine

Today, Friday, Oct. 22 at 8 P.M., at the Royal College of Surgeons, Lincoln's Inn Fields, London, W.C.2, some of the members of the group of British doctors who lately visited Soviet Russia under the auspices of the Society for Cultural Relations with the U.S.S.R. will describe their impressions and answer questions.

Liverpool Medical Institution

At the opening meeting of the 118th session on Oct. 14 a presentation was made to Mr. W. A. Lee, the resident librarian, and Mrs. Lee in recognition of their 25 years' service with the institution. Sir Henry Cohen, the president, gave the inaugural address, on Old English Silver and its medical interest, and showed photographs of pomanders, vinaigrettes, bleeding-bowls, feeding-cups, and pap-boats.

Royal Society of Medicine

The report for the year ended last May gives particulars of the society's finances during 1952–53. At £74,807, income exceeded expenditure by £3451, but a deficit on the rebuilding scheme (now complete) and the continuance of an overdraft on current account led the council to launch an appeal for an endowment fund of £250,000. This appeal was made especially to the principal chemical and pharmaceutical firms, and many have already responded generously. 364 new fellows were elected in the period under review—an increase of 85 over the previous year. The society has over 9000 fellows, and several hundred members and associates.

Homes for the Aged

Miss Patricia Hornsby-Smith, parliamentary secretary to the Ministry of Health, opening a home for old people at Kidderminster on Oct. 12, referred to progress made by local health authorities in providing small homes for the aged in need of care and attention. When the National Assistance Act came into force in 1948 there were about 60 small homes in the ownership of local authorities. Now 749 were open, with accommodation for 21,100. In addition, each year since 1948 the number of persons maintained by local authorities in voluntary homes had increased by about 600; and the total at the start of this year was 8843. About 95% of old people of pensionable age lived in their own homes.

Charing Cross Hospital Dinner

The annual dinner of past and present students of this hospital was held on Oct. 9. The occasion was an informal one and the guests were limited to students of the school. Dr. Russell J. Reynolds, who took the chair, proposed The Medical School. He said he could look back on many happy years of association with the school, for he had joined the staff of the hospital in May, 1921. He had revisited the school recently and was impressed by the vitality of the staff and students, even though they were working under exceptionally difficult conditions. Dr. Reynolds gave an interesting historical account of radiology: he was now the oldest living radiologist in the world, for he began his study of the subject in 1896, and he still had in his possession one of his first X-ray films taken in that year. Replying to this toast, Dr. E. C. Warner, dean of the medical school, read part of a letter received from Dr. C. Lockyer who, at the age of 87, was now living in Penzance. Dr. Warner also gave an account of the activities of the school during the past year and its hopes for the future. The health of the two retiring consultant members of the staff, Mr. L. R. Broster and Mr. Arthur Gray, was proposed by Dr. J. E. M. Wigley. The dinner was held on the occasion of a weekend postgraduate course for old students of the school, at which there was a large attendance.

International Union of Railway Medical Services

The 6th congress of this Union has been held in Wiesbaden. The congress dealt with the subject of peptic ulcer in railway employees. The reporters of the congress were Dr. Fraser Mackenzie, *regional medical officer, of British Railways* (North-eastern Region), and Dr. Van Roy, of the Belgian Railways. Some speakers questioned whether it was wise to admit to the railway service people with a previous history of peptic ulceration. Emphasis was laid on the adjustment *of working conditions for those in whom peptic ulcer had* been previously diagnosed and treated.

CORRIGENDUM: *Reception Centre.*—The name of *Miss Leila* Rendel, director of the Caldecott Community, was misspelt in last week's issue (p. 811).

Diary of the Week

OCT. 24 TO 30

Monday, 25th

POSTGRADUATE MEDICAL SCHOOL OF LONDON, Ducane Road, W.12
2 P.M. Dr. Desmond Curran: Delirium and Allied States.
ROYAL SOCIETY OF MEDICINE, 1, Wimpole Street, W.1
5.30 P.M. *Odontology.* Mr. C. Bowdler Henry: Homes of the Odontological Society and their Association, 1856–1900. *(Presidential address.)*
INSTITUTE OF NEUROLOGY, National Hospital, Queen Square, W.C.1
5.30 P.M. Dr. S. P. Meadows: Optic Atrophy.
MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.1
8.30 P.M. Prof. F. C. Ormerod and Mr. C. Worster-Drought: Hoarseness.
MANCHESTER MEDICAL SOCIETY
9 P.M. (Medical School, University of Manchester.) General Practice. Dr. A. Morgan Jones: Modern Advances in Cardiology.

Tuesday, 26th

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.1
5 P.M. Dr. Eric Scowen: Some Endocrine Factors in Breast Cancer. (Langdon-Brown lecture.)
ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C.2
3.45 P.M. Prof. Gilbert Causey: Mechanics of Respiration. *(Arnott demonstration.)*
BRITISH POSTGRADUATE MEDICAL FEDERATION
5.30 P.M. (London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1.) Prof. J. D. Boyd: Importance of Detail in the Clinical Anatomy of the Autonomic Nervous System.
ROYAL SOCIETY OF MEDICINE
8 P.M. Medicine. Prof. J. F. Wilkinson, Prof. B. W. Windeyer, Sir Stanford Cade, Dr. Richard Asher, Dr. Bruce Pearson, Dr. A. G. Ogilvie: "Summings Up."
ST. MARY'S HOSPITAL MEDICAL SCHOOL, Paddington, W.2
5 P.M. Dr. Raymond Cohen: Tuberculosis in Pregnancy.
INSTITUTE OF DERMATOLOGY, St. John's Hospital, Lisle Street, W.C.2
5.30 P.M. Prof. C. A. Keele: Hyperhidrosis.
ROYAL STATISTICAL SOCIETY
6 P.M. (Westminster Medical School, Horseferry Road, S.W.1.) Dr. John Fry: Research in General Practice.
OXFORD UNIVERSITY
5 P.M. (Mathematical Institute, Parks Road, Oxford.) Mr. N. T. J. Bailey: Queues, Waiting-lists, and Appointment Systems for Hospitals.
MANCHESTER MEDICAL SOCIETY
4.30 P.M. (Medical School, University of Manchester.) Mr. A. Dickson Wright: Illnesses and Deaths of the English Kings.

Wednesday, 27th

POSTGRADUATE MEDICAL SCHOOL OF LONDON
2 P.M. Prof. N. F. Maclagan: Investigation of Thyroid Function.
ROYAL SOCIETY OF MEDICINE
5 P.M. *Endocrinology.* Dr. P. M. F. Bishop: Development of British Endocrinology. (Presidential address.)
8 P.M. *Pædiatrics.* Mr. G. H. Macnab: Intestinal Obstruction in the Newborn. (Presidential address.)
ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, W.1
3.30 P.M. Dr. J. H. Sheldon: The Old-age Aspects of Social Medicine.
INSTITUTE OF DERMATOLOGY
5.30 P.M. Dr. R. W. Riddell: Relation of Fungous Infection to Dynamics of Hair and Nail Growth.
INSTITUTE OF OBSTETRICS AND GYNÆCOLOGY
3 P.M. (Hammersmith Hospital, Ducane Road, W.12.) Mr. N. Morris: Management of Hypertension.
INSTITUTE OF UROLOGY
5 P.M. (Royal College of Surgeons.) Mr. E. W. Riches: Present Status of Reno-angiography.
RENAL ASSOCIATION
4.30 P.M. (Ciba Foundation, 41, Portland Place, W.1.) Dr. R. A. Dale: Adrenocortical Control of Sodium and Potassium Metabolism. Dr. V. Eisen: Stimulation of Renal Potassium Excretion in the Adrenalectomised Rat.

Thursday, 28th

ROYAL COLLEGE OF SURGEONS
5 P.M. Sir Gordon Gordon-Taylor: Life and Times of Sir Charles Bell. (Thomas Vicary lecture.)
BRITISH POSTGRADUATE MEDICAL FEDERATION
5.30 P.M. (London School of Hygiene and Tropical Medicine.) *Prof. David Whitteridge, F.R.S.: Effects of Visceral* Distension.
UNIVERSITY OF LONDON
5 P.M. (St. Mary's Hospital Medical School, Paddington, W.2.) Prof. Maurice Welsch (Liége): Bacterial Resistance to Streptomycin.
ROYAL ARMY MEDICAL COLLEGE, Millbank, S.W.1
5 P.M. Prof. George Macdonald: Epidemiology of Malaria.
ROYAL EYE HOSPITAL, St. George's Circus, S.E.1
5.30 P.M. Dr. T. H. Whittington: The "Refraction Case."
INSTITUTE OF DERMATOLOGY
5.30 P.M. Dr. Henry Haber: Histopathology of Eczema, Psoriasis, and Lichenoid Eruptions.
LIVERPOOL MEDICAL INSTITUTION, 114, Mount Pleasant, Liverpool, 3
8 P.M. Dr. Macdonald Critchley: The Crimes of Dr. Marcel Pétiot.
UNIVERSITY OF ST. ANDREWS, Medical School, Small's Wynd, Dundee
5 P.M. Sir Charles Harington, F.R.S.: Biochemistry and *Physiology of the Thyroid Gland.*

Friday, 29th

POSTGRADUATE MEDICAL SCHOOL OF LONDON
2 P.M. Mr. George Qvist: Surgery of Tuberculosis.
INSTITUTE OF DERMATOLOGY
5.30 P.M. Dr. G. C. Wells: Superficial Fungous Infections.
INSTITUTE OF NEUROLOGY
5 P.M. Dr. W. Feldberg, F.R.S.: Intraventricular Injections—an Attempt to Study the Pharmacology of the Peri-*ventricular Grey Matter.*
INSTITUTE OF OBSTETRICS AND GYNÆCOLOGY
4.30 P.M. (Chelsea Hospital for Women, Dovehouse Street, S.W.3.) Mr. J. W. A. Hunter: "The Manchester Operation."
MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos Street, W.1
7.30 P.M. Dr. Earle Moore (Baltimore): Ætiologic Background of Biologic False Positive Tests for Syphilis.
ROYAL FACULTY OF PHYSICIANS AND SURGEONS, 242, St. Vincent Street, Glasgow
5 P.M. Mr. William Reid: Peripheral Vascular Disease.
MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH
8.30 P.M. (Royal Faculty of Physicians and Surgeons, Glasgow.) Prof. J. W. Crofton, Mr. R. S. Barclay: Modern Methods in the Treatment of Pulmonary Tuberculosis. (Joint meeting with the Royal Medico-Chirurgical Society of Glasgow.)

Saturday, 30th

INSTITUTE OF OBSTETRICS AND GYNÆCOLOGY
11.15 A.M. (Queen Charlotte's Hospital, Goldhawk Road, W.6.) Mr. H. J. Malkin: Spinal Analgesia in Obstetric Practice.

Appointments

ARKLE, KENNETH, M.B., D.P.M.: asst. psychiatrist (S.H.M.O.), Garlands Hospital, Carlisle.
DONNELLY, G. P., M.B. N.U.I., D.P.H.: asst. M.O.H. and asst. school M.O., Oldham.
ELPHICK, G. D., F.R.C.S.: consultant ophthalmologist, Leicester Royal Infirmary.
POLLARD, B. R., M.B. Camb.: asst. pathologist, Frenchay Hospital, Bristol.
PRATT, R. T. C., B.M. Oxfd, M.R.C.P., D.P.M.: physician to the department of psychological medicine, Maida Vale Hospital for Nervous Diseases, London.
ROBSON, S. R., M.B. Durh., D.O.M.S.: consultant ophthalmologist, Leicester Royal Infirmary.
STEWART, A. M., M.B. Edin., F.R.C.S.E., D.M.R.D.: asst. diagnostic radiologist, Aberdeen general hospitals.
WOOD, M. C., M.A., M.D. Dubl., D.M.R.: diagnostic radiologist, The Royal Marsden Hospital, London.

The Hospital for Sick Children, Great Ormond Street, London:
BLACKENBURG, BRUNO, M.B., D.A.: junior resident anæsthetist.
HELLINGS, PAMELA M., M.B. Brist., F.F.A.R.C.S., D.A.: resident anæsthetist.
MCCULLOCH, MERLYN JOY, B.M. Oxfd: house-surgeon to the orthopædic and plastic departments.
RING, P. A., M.B. Lond., F.R.C.S.: part-time orthopædic registrar.
SHNIER M. H., M.B., M.R.C.P.E, D.C.H.: house-physician.
SIMPKISS, M. J., M.B. Birm., M.R.C.P.: medical registrar and pathologist.

Appointed Factory Doctors:
BUCKLEY, F. B., M.B. Birm.: Stavely, Westmorland.
MACDONALD, ALEXANDER, M.B.: Kilarow-and-Kilmeny, Argyllshire.
MACLEAN, D. A., M.B. Glasg., D.P.H., D.I.H.: Clydebank, Dumbartonshire.

Births, Marriages, and Deaths

BIRTHS

LAURANCE.—On Oct. 10, at Bristol Maternity Hospital, to Audrey (née Kidner), wife of Dr. Bernard M. Laurance—a daughter.

DEATHS

BRODIE.—At Invercargill, New Zealand, on Oct. 10, Dr. William Hugh Brodie, husband of the late Dr. Mabel Brodie.
WESTON.—On Sept. 28, at his home, Woodlands, Sedlescombe, Sussex, Henry James Weston, M.R.C.S., aged 83, formerly of St. Leonards-on-Sea.

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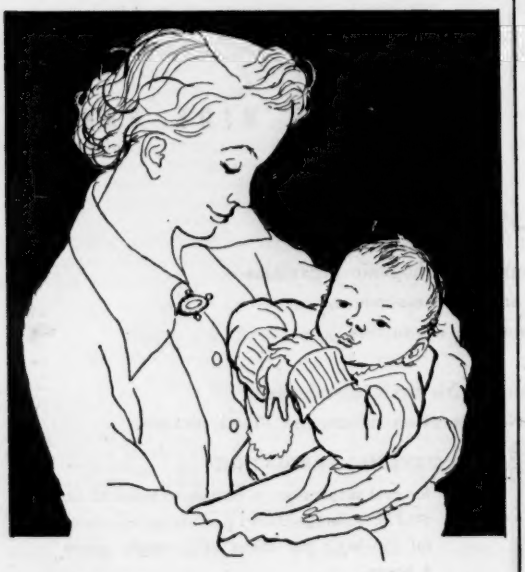

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Vacancies

	Page
ACADEMIC AND EDUCATIONAL SECTION	43
ANÆSTHETICS	
Highlands Gen., N.21. H.O... ..	46
Royal Free Hosp. Group. Reg. ..	46
Royal Free Hosp. Group. P.-t. Cons.	44
West Ham Group H.M.C., E.15. Sr. H.O.'s	46
Bishop Auckland Gen. Sr. H.O. ..	47
Burton-on-Trent Gen. Infy. Jr. H.M.O.	47
Chatham, All Saints'. Sr. H.O. ..	48
Chelmsford Hosps. Sr. H.O... ..	48
Dartford H.M.C. P.-t. Locum Cons.	44
Dudley, Stourbridge & Dist. Sr. H.O.'s	48
Edgware Gen. Sr. H.O.	48
Hitchin Hosps. Sr. H.O.	49
Ipswich. Borough Gen. Sr. H.O. ..	49
Leeds A Group H.M.C. Sr. H.O. ..	49
Leeds R.H.B. Reg.	50
Luton & Dunstable. Sr. H.O. ..	50
Manchester R.H.B. Reg.	50
Manchester R.H.B. Sr. H.M.O. ..	44
Mid-Kent H.M.C. Sr. H.O... ..	50
Newcastle R.H.B. Reg.	51
Northwood. Mount Vernon. Reg. ..	51
Norwich United Hosps. Reg.	50
Nottingham Gen. Sr. H.O. or Locum Sr. H.O.	51
Poole Gen. Sr. H.O.	51
Scotland. Eastern R.H.B. Reg. ..	52
Scotland. Western R.H.B. Cons. ..	44
Sheffield R.H.B. Reg.	53

(continued overleaf)

Sheffield United Hosps. Sr. Reg. & Sr. H.O. 53
Swindon. Victoria. Sr. H.O. .. 52
Warrington Infy. Sr. H.O. 53
Wolverhampton Group. Sr. H.O. .. 53
New Zealand. Cook Hosp. Board. Anæsthetist 45

CASUALTY
Charing Cross Hosp. Group. Jr. H.M.O. 45
Lambeth, S.E.11. Sr. H.O. 46
Memorial, S.E.18. Sr. H.O. 46
Westminster Hosp. Teaching Group. H.O. or Sr. H.O. 46
Birmingham. Solihull. Jr. H.M.O. .. 47
Birmingham United Hosps. H.O. .. 47
Colchester. Essex County. Sr. H.O. 48
Edgware Gen. Sr. H.O. 48
Grimsby Gen. Sr. H.O. 49
Leeds Public Dispensary & Hosp. Sr. H.O. 50
Leeds R.H.B. Sr. Casualty Officers. . 44
Nottingham Gen. Locum Sr. H.O. .. 51
Nottingham Gen. Sr. H.O. 51
Orpington, Kent. Sr. H.O. 51
Sheffield R.H.B. Sr. Casualty Officer 44
Stafford. Staffordshire Gen. Infy. Jr. H.M.O. 52
Torquay. Torbay. Sr. H.O. 53
Watford & Dist. Peace Mem. H.O. .. 53
Windsor. King Edward VII. Sr. H.O. 53
Wolverhampton Group. H.O. .. 53

CHEST AND TUBERCULOSIS
Brompton, S.W.3. Sr. H.O. 45
London Chest, E.2. H.O.'s. 46
London Chest, E.2. Reg. 46
Birmingham R.H.B. Sr. H.M.O. .. 44
Carshalton. St. Helier. Reg. .. 48
Chelmsford. Broomfield. Locum Sr. H.M.O. 44
Harefield, Middx. Reg. 49
Leeds R.H.B. Reg. 50
Leicester Isolation Hosp. & Chest Unit. Reg. 49
Manchester R.H.B. Reg. 50
Manchester R.H.B. Sr. Reg. .. 50
Newcastle R.H.B. Locum Sr. H.M.O. 44
Scotland. Western R.H.B. Sr. Reg. 52
Welsh R.H.B. Sr. H.M.O. 44
Yorkshire. East Riding H.M.C. Sr. H.O. 54

DENTAL SURGERY
Plymouth. South Devon & East Cornwall. H.O. 51
Salisbury Group H.M.C. Locum Reg. 52

EAR, NOSE, AND THROAT
Hackney Group H.M.C. P.-t. Clin. Assts. 46
Royal National T.N. & E. H.O. .. 46
Royal National T.N. & E. & Inst. of Laryngology & Otology. Reg. or Sr. H.O. 46
Birmingham R.H.B. Reg. 47
Bournemouth & East Dorset H.M.C. H.O. 48
Canterbury. Kent & Canterbury. Sr. H.O. 48
Dartford. Southern. Locum Sr. H.O. 48
Maidstone, Kent County Ophthalmic & Aural. Sr. H.O. 51
Manchester R.H.B. P.-t. Cons. .. 44
Manchester R.H.B. Sr. Reg. .. 50
Newport, Mon. Royal Gwent. Jr. H.M.O. or Sr. H.O. 51
Perth. County & City Gen. Hosps. Sr. H.O. 51
Scotland. Western R.H.B. Sr. Reg. 52
Sheffield United Hosps. Sr. Reg. .. 53
York A & Tadcaster H.M.C. Sr. H.O. 54

GERIATRICS
Leeds. St. James's. H.O. 49
Scotland. Western R.H.B. Sr. H.M.O. 44

INFECTIOUS DISEASES
Leeds. Seacroft. Sr. H.O. 50

MEDICINE
Charing Cross Hosp. Group. Pre-reg. H.O.'s 45
King Edward Mem., W. H.O. .. 46
Lambeth, S.E.11. Sr. Reg. 46
Middlesex, W.1. Asst. 46
St. James', S.W.12. H.O. 46
St. Leonard's, N.1. H.O. 46
Bishop's Stortford & Dist. H.O. .. 47
Dorchester. Dorset County. Locum Reg. 48
Dorchester. Dorset County. Reg. .. 48
Hitchin. Lister. Reg. 49
Huddersfield. St. Luke's. Jr. H.M.O. 49
Hull. Kingston Gen. Sr. H.O. .. 49
Leeds R.H.B. Reg. 50
Manchester. West Manchester H.M.C. Sr. H.O. 50
Northwood, Pinner & Dist. P.-t. G.-P. 51
Perth. County & City Gen. Hosps. H.O. 51
Salisbury Gen. Pre-reg. H.O. .. 52
Scotland. Eastern R.H.B. Reg. .. 52
Scotland. Western R.H.B. P.-t. Cons. & P.-t. Sr. H.M.O. 44
Southport. Promenade. Sr. H.O. .. 52
St. Albans City. Reg. 51
Stornoway. Lewis. H.O. 51
Swansea. Mount Pleasant. Jr. H.M.O. 52
Weymouth & Dist. H.O. 53
Wolverhampton Group. H.O. .. 53
Worthing. Reg. 53

NEUROLOGY
Bristol Clinical Area. Reg. 48

NEUROSURGERY
Guy's-Maudsley Neurosurgical Unit. Sr. H.O. 46
West Bromwich & Dist. H.M.C. Sr. H.O. 53

OBSTETRICS AND GYNÆCOLOGY
Charing Cross Hosp. Group. Pre-reg. H.O.'s 45
Hammersmith, W.12. H.O.'s .. 46
St. Thomas's, S.E.1. H.O. 46
Whittington, N.19. Sr. Reg. 46
Birmingham United Hosps. H.O.'s 47
Canterbury. Kent & Canterbury. H.O. 48
Dorking Gen. Sr. H.O. 48
Greenford. Perivale Maternity. H.O. 49
Hastings. Buchanan. H.O. 49
Leeds R.H.B. Regs. 50
Liverpool United Hosps. Sr. Reg. .. 50
Manchester United Hosps. H.O. .. 50
Reading. Royal Berks. H.O. .. 51
Sheffield. City Gen. Reg. 53
Sheffield R.H.B. P.-t. Cons. 44
St. Albans City. Jr. H.M.O. 51
St. Helens. Providence. Hon. Cons. 44
Welsh R.H.B. Regs. 53

OPHTHALMOLOGY
North East Met. R.H.B. P.-t. Sr. H.M.O.'s 43
North West Met. R.H.B. P.-t. Cons. 43
West End Hosp. for Neurology & Neurosurgery, W.1. P.-t. Clin. Asst. 46
Aylesbury. Royal Buckinghamshire. H.O. 47
Birmingham & Midland Eye. H.O. .. 47
Birmingham & Midland Eye. Sr. H.O. 47
Birmingham R.H.B. P.-t. Cons. .. 44
Liverpool United Hosps. Temp. Sr. H.O. 50
Nottingham & Midland Eye Infy. Sr. H.O. & H.O. 51
Sheffield United Hosps. Sr. H.O. .. 53
Southampton Eye. Sr. H.O. .. 52
Wolverhampton Group. Sr. H.O. .. 53

ORTHOPÆDICS
Alton. Lord Mayor Treloar Orth. Reg. & Locum 47
Bedford Gen. Reg. 47
Braintree. Black Notley. H.O. .. 48
Cardiff United Hosps. Sr. Reg. .. 48
Chertsey. St. Peter's. Sr. H.O. or H.O. 48
Farnborough, Kent. Sr. H.O. .. 49
Leeds R.H.B. Regs. 50
Leeds. St. James's. Sr. H.O. 49
Perth. County & City Gen. Hosps. Sr. H.O.'s & H.O.'s. 51
Plymouth. Mount Gold Orthopædic. Sr. H.O. 51
Salisbury Gen. H.O. 52
Scotland. Western R.H.B. P.-t. Cons. 44
Sheffield R.H.B. Sr. Reg. 53
Stoke-on-Trent. North Staffs Royal Infy. Sr. H.O. 51

PÆDIATRICS
Charing Cross Hosp. Group. Pre-reg. H.O. 45
Children's, S.E.26. Sr. H.O. 45
Hosp. for Sick Child., W.C.1. Reg. .. 47
North East Met. R.H.B. P.-t. Cons. 43
Westminster Hosp. Teaching Group. Pre-reg. H.O.'s 46
Birmingham United Hosps. Sr. H.O. or Reg. 47
Canterbury. Kent & Canterbury. H.O. 48
Isleworth. West Middlesex. Reg. .. 49
Leeds R.H.B. Reg. 50
Newcastle Gen. Sr. H.O. 51
Oxford United Hosps. Reg. 51
Southend-on-Sea Gen. H.O. .. 52
Western Australia. Princess Margaret Hosp. for Child. Sr. H.M.O.'s .. 45

PATHOLOGY
Elizabeth Garrett Anderson, N.W.1. Reg. 46
Group Lab., Mile End, E.1. Sr. H.O. 45
North West Met. R.H.B. Cons. .. 43
Birmingham United Hosps. Sr. H.O. 47
Leeds R.H.B. P.-t. Cons. 44
Manchester R.H.B. Cons. 44
Nottingham Gen. Sr. H.O. 51
Sheffield United Hosps. Reg. or Sr. H.O. 53
Stoke-on-Trent H.M.C. Jr. H.M.O. or Sr. H.O. 52
Yorkshire. East Riding H.M.C. Sr. H.O. 54
Australia. Royal Women's, Melbourne. Asst. Path. 45
Western Australia. Princess Margaret Hosp. for Child. Pathologist .. 45

PHYSICAL MEDICINE
St. Stephen's, S.W.10. Reg. 46
Isleworth. West Middlesex. Reg. .. 49
North West Met. R.H.B. P.-t. Sr. H.M.O. 43

PLASTIC SURGERY
Welsh R.H.B. Sr. Reg. 53

PSYCHIATRY
Bethlem Royal & Maudsley. Sr. H.O., Sr. Reg. & Reg. 45
Arlesey, Beds. Three Counties (Mental). Reg. 47
Bath Clinical Area. Sr. H.M.O. .. 44
Coulsdon, Netherne. H.O. 48
Leeds R.H.B. Regs. 50
Liverpool. Moss Side. Reg. or Jr. H.M.O. 50
Isleworth. West Middlesex. Sr. H.O. 49
Newcastle R.H.B. Sr. H.M.O. .. 44
Scotland. South-Eastern R.H.B. Sr. H.M.O. 45
Scotland. Western R.H.B. Sr. H.M.O. 44
Scotland. Western R.H.B. Sr. Reg. 52
Sheffield R.H.B. Sr. Reg. 52
Southampton. Coldeast. Jr. H.M.O. 52
Worcester, Powick. Jr. H.M.O. .. 53
Yorkshire. East Riding H.M.C. Jr. H.M.O.'s 54
Northern Ireland Hosps. Auth. Cons. 45

RADIOLOGY
Charing Cross Hosp. Group. Pre-reg. H.O. 45
Birmingham R.H.B. Regs. 47

RHEUMATOLOGY
Taplow. Canadian Red Cross Mem. Reg. 53

SURGERY
Central Middlesex, N.W.10. H.O. .. 45
Charing Cross Hosp. Group. Pre-reg. H.O.'s 45
London Jewish, E.1. H.O. 46
Royal Marsden, S.W.3. H.O.'s .. 46
Royal Masonic, W.6. Cons. 43
Barnstaple. North Devon Infy. Sr. H.O. 47
Barrow-in-Furness. North Lonsdale. Sr. H.O. 47
Birmingham. Dudley Rd. Group of Hosps. Sr. Reg. 47
Birmingham R.H.B. Reg. 47
Bishop's Stortford. Haymeads. H.O. 47
Blackburn Royal Infy. Reg. & Sr. H.O. 47
Boston. Gen. Reg. 48
Canterbury. Kent & Canterbury. H.O. 48
Dewsbury. Gen. H.O. 48
Dewsbury. Staincliffe Gen. H.O. .. 48
Dudley, Stourbridge & Dist. Sr. H.O. 48
Edgware Gen. Reg. & Locum Reg. .. 48
Epsom Dist. Pre-reg. H.O.'s 49
Gt. Yarmouth & Gorleston Gen. H.O. 49
Hereford Gen. H.O. 49
Hitchin, Herts. H.O. 49
Hove Gen. Sr. H.O. 49
Leeds R.H.B. Regs. 50
Loughborough Gen. Sr. H.O.'s .. 50
Manchester. West Manchester H.M.C. Sr. H.O.'s & H.O. 50
Poole Gen. Pre-reg. H.O.'s 51
Scotland. Eastern R.H.B. Reg. .. 52
Scotland. Western R.H.B. P.-t. Cons. 44
Sheffield United Hosps. Regs. 53
Shrewsbury. Royal Salop Infy. H.O. 53
Slough. Upton. Pre-reg. H.O. 53
Southend-on-Sea Gen. Sr. H.O. .. 52
Stoke-on-Trent. City Gen. H.O. .. 52
Stoke-on-Trent. North Staffs Royal Infy. H.O. 52
Weymouth & Dist. H.O. 54
Worthing. H.O. 53
Northern Ireland Hosps. Auth. Sr. H.M.O. 45

GENERAL
New York. New Rochelle. Internships 54

PUBLIC APPOINTMENTS 54

MISCELLANEOUS 54

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UNIVERSITY OF CAMBRIDGE. Applications are invited for a University LECTURESHIP in the Department of Animal Pathology vacant on 1st January, 1955, the holder to undertake teaching and research in metabolic and nutritional diseases. Veterinary or medical qualification desirable but not essential. Stipend £750–£50–£1250, according to experience, with superannuation (F.S.S.U.) and family allowance. This stipend may be supplemented by a pensionable payment not exceeding £120 a year depending upon the fulfilment of certain specified conditions.

Applications (10 copies and names of 3 referees) by 20th November, 1954, to the Secretary, Appointments Committee of the Faculty of Biology "B," Department of Pathology, Tennis Court-road, Cambridge, from whom further particulars may be obtained.

THE UNIVERSITY OF LEEDS. Department of Pathology. Applications are invited from qualified medical practitioners for a temporary post for 1 year from 1st December, 1954, as LECTURER in the Department of Pathology at a salary within the range £1000–£1500 according to qualifications and experience.

Applications (3 copies), stating date of birth, qualifications and experience, together with the names of 3 referees, should reach the Registrar, The University, Leeds, 2 (from whom further particulars may be obtained), not later than 20th November, 1954.

UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE. Applications are invited for the post of LECTURER IN ANATOMY AND HISTOLOGY from 1st January, 1955, or as soon after that time as possible. The salary will be in the scale £700–£100–£1300 p.a. plus Family Allowance and with participation in the Federated Superannuation Scheme. Good facilities are available for research.

Further particulars can be obtained from the undersigned, to whom applications (8 copies), including names of 3 referees, should be sent by 20th November, 1954.

E. R. EVANS, Registrar.

Cathays Park, Cardiff, October, 1954.

UNIVERSITY COLLEGE OF THE WEST INDIES. Applications are invited for LECTURESHIP in Department of Obstetrics and Gynæcology. Duties include clinical work at Consultant level in University College Hospital, instruction of students working for medical degrees of University of London and research. Salary £950–£50–£1100–£50–£1400 p.a., point of entry depending on qualifications and experience. Child allowance. F.S.S.U. Unfurnished accommodation at rental of 5% of basic salary. The successful applicant will be expected to take up the post on or as soon as possible after 1st April, 1955.

Applications (10 copies), giving full particulars of qualifications and experience, and names of 3 referees, should be received before 8th November, 1954, by Secretary, Senate Committee on Higher Education in the Colonies, University of London, W.C.1, from whom further particulars may be obtained.

INSTITUTE OF MEDICAL AND VETERINARY SCIENCE, SOUTH AUSTRALIA. Applications are invited for the appointment of MEDICAL RESEARCH FELLOW which will become vacant in February, 1955. The object of this appointment is to provide an opportunity for a medical graduate who has already had some experience and success in research to devote the whole of his time to investigations in some aspect of virology, bacteriology, hæmatology or histopathology. The Institute maintains laboratories for routine examinations in all branches of clinical pathology, from which material for research is available. The laboratories are modern and well equipped. The appointment will be for 5 years and the salary offered is £2000–£2500 (Australian) by annual increments of £100. Reasonable arrangements for fares and other expenses incurred on taking up this appointment will be made.

Applications will close on 31st December, 1954. Further particulars may be obtained from the Director of the Institute, P.O. Box 14, Rundle-street, Adelaide, South Australia.

Hospital Services: Senior Appointments

NORTH EAST METROPOLITAN REGIONAL HOSPITAL BOARD.

Part-time CONSULTANT PÆDIATRICIAN, Queen Elizabeth Hospital for Children, E.2 (2 sessions a week), required to undertake clinic in pædiatric endocrinology.

Part-time ASSISTANT OPHTHALMOLOGIST (Senior Hospital Medical Officer grade), Queen Elizabeth Hospital for Children, E.2 (1 session a week).

Part-time ASSISTANT OPHTHALMOLOGIST (Senior Hospital Medical Officer grade), Woodberry Down Health Centre, N.4 (1 session a week and 1 session a fortnight).

Applications (6 copies), stating post concerned, and names of 3 referees, should reach the Secretary, 11A, Portland-place, London, W.1, by Saturday, 6th November.

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD.

(1) CONSULTANT in Morbid Anatomy (whole-time) at North Western Group Laboratory, 4–8, Pond-street, N.W.3, to undertake the morbid anatomy and histology of Paddington General Hospital, W.9 (564 Beds), and St. Charles' Hospital, W.10 (593 Beds).

Applications by 24th November, 1954.

(2) CONSULTANT OPHTHALMOLOGIST (part-time) for 1 half-day a week at Royal London Homœopathic Hospital, W.C.1 (183 Beds).

Applications by 29th November, 1954.

(3) ASSISTANT PHYSICIAN in Physical Medicine (part-time). Duties at Mount Vernon Hospital, Northwood (555 Beds), for 4 half-days a week and Northwood, Pinner and District Hospital (36 Beds) for 1 half-day a week. Salary scale £1500 (unless below age 32)–£1950.

Applications by 9th December, 1954.

Laboratory and hospitals may be visited by direct appointment.

Application forms obtainable from and returnable to Secretary, North West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1.

ROYAL MASONIC HOSPITAL, Ravenscourt Park, London, W.6. Applications are invited from Fellows of 1 of the Royal Colleges of Surgeons for the appointment of CONSULTANT SURGEON at the above Hospital as from 1st April, 1955. Candidates must be engaged in consulting practice and well established in their profession.

Applications, giving detailed information, and the names and addresses of 3 referees, should reach the undersigned (from whom further information may be obtained) on or before 30th November, 1954.

R. E. LAWSON, Secretary and House Governor.

ROYAL FREE HOSPITAL GROUP. Applications are invited from registered medical practitioners for the post of CONSULTANT ANÆSTHETIST (part-time) to the Royal Free Hospital Group to work at the Hampstead General Hospital. Duties to commence 1st March, 1955.

Applications, stating details of qualifications, experience, and giving the names of 3 referees, should be forwarded to the Secretary to the Board of Governors, The Royal Free Hospital, Gray's Inn-road, London, W.C.1, not later than 30th November, 1954.

BATH CLINICAL AREA. South-Western Regional HOSPITAL BOARD. Applications are invited from registered medical practitioners for the appointment of ASSISTANT PSYCHIATRIST at Roundway Hospital, Devizes, which contains approximately 1457 Beds. The appointment will be on a whole-time basis in the Senior Hospital Medical Officer grade. Applicants should possess the Diploma in Psychological Medicine, and previous experience of the diagnosis and treatment of mental diseases is essential. The successful candidate will work under the general direction of the Medical Superintendent of Roundway Hospital. An unfurnished house is available.

Applications (12 copies), stating date of birth, qualifications and experience, together with 12 copies of 2 testimonials, and the names and addresses of 2 referees, should be sent to the Secretary of the Regional Hospital Board, 27, Tyndalls Park-road, Bristol, 8, not later than 6th November, 1954.

BIRMINGHAM REGIONAL HOSPITAL BOARD.

Part-time CONSULTANT OPHTHALMIC SURGEON (6 notional half-days weekly). Duties —Coventry and Warwickshire Hospital (346 Beds—36 ophthalmic) (4 notional half-days), and School Eye Service, Coventry (2 notional half-days). F.R.C.S., preferably in ophthalmology, required with wide experience in specialty.

Whole-time ASSISTANT CHEST PHYSICIAN (£1500–£1950 p.a.). Duties as Deputy Medical Superintendent of Group Sanatoria (total 280 Beds, including 60 children) (9/11ths) and also at Chest Clinic, Dudley (2/11ths).

Applications (15 copies), stating name, age, nationality, qualifications, present and previous appointments, and details of 3 referees, to Secretary, 10, Augustus-road, Birmingham, 15, before 8th November, 1954.

CHELMSFORD, ESSEX. BROOMFIELD HOSPITAL. Experienced Locum Tenens SENIOR HOSPITAL MEDICAL OFFICER required from 20th November. Unit has 330 beds for the treatment of pulmonary tuberculosis in adults, tuberculous and non-tuberculous thoracic surgery, chest clinics and mass radiography.

Apply Physician-Superintendent.

DARTFORD HOSPITAL MANAGEMENT COMMITTEE. Locum CONSULTANT ANÆSTHETIST required for 9 sessions a week in the Dartford Group of hospitals from 29th October, 1954.

Applications to the Group Secretary, The Bow Arrow Hospital, Dartford, Kent.

LEEDS REGIONAL HOSPITAL BOARD. Applications invited for the following appointments :—

SENIOR CASUALTY OFFICER (whole-time) for duties at the Hull Royal Infirmary. The person appointed will be required to undertake the routine duties of the department under the general supervision of the Consultant Orthopædic Surgeon-in-charge and will be required to reside in Hull.

SENIOR CASUALTY OFFICER (whole-time) for duties at the Royal Halifax Infirmary. The appointment will include duties in casualty and orthopædic surgery at the above Hospital with associated ward and operating duties under the general supervision of the Consultant-in-charge. The person appointed will be required to reside in Halifax.

The salary for the above appointments will be within the range of £1500–£1950 p.a. and the tenure of the posts will be for a period not exceeding 4 years.

Part-time CONSULTANT (9 sessions per week) in Pathology for duties at hospitals in the Bradfordarea. The person appointed to reside in Bradford.

Applications (12 copies), stating age, qualifications, details of appointments held showing dates, with names and addresses of 3 referees, to the Secretary, Park-parade, Harrogate, before 20th November, 1954.

NEWCASTLE REGIONAL HOSPITAL BOARD. Appointment of ASSISTANT PSYCHIATRIST (Senior Hospital Medical Officer status), Winterton Hospital, Sedgefield (2000 Beds). The Hospital serves Darlington County Borough, West Hartlepool County Borough and parts of the County of Durham (total population 786,037). The medical staff of this Hospital hold outpatient clinics at the Darlington Memorial Hospital, Stockton and Thornaby Hospital, the County Hospital, Durham, and the general hospitals at Bishop Auckland and West Hartlepool; they provide a Psychiatric Consultant Service for these and other general and specialist hospitals in the area. At some of the general hospitals beds are available for psychiatric patients. Candidates should normally hold a Diploma in Psychological Medicine, but applications will be considered from candidates with no previous practical experience in psychiatry who hold a higher medical qualification, have had wide experience in general medicine, including Senior Registrar posts, and intend to obtain a Diploma in Psychological Medicine and specialise in psychiatry. Arrangements can be made for the person appointed to take the necessary courses of study for the Durham Diploma in Psychological Medicine. An unfurnished flat is available. The appointment is whole-time and resident, and is in accordance with the national terms and conditions of service. Canvassing will disqualify, but candidates are free to visit the Hospital by arrangement with the Medical Superintendent, from whom further particulars may be obtained.

Applications, together with names and addresses of referees (preferably), or testimonials, to a total of 3, to be sent to the Regional Psychiatrist, "Blythswood South," Osborne-road, Newcastle upon Tyne, 2, within 28 days.

NEWCASTLE REGIONAL HOSPITAL BOARD. Gateshead TUBERCULOSIS ADMINISTRATIVE AREA. Locum CHEST PHYSICIAN (Senior Hospital Medical Officer), whole-time, for a period of up to 6 months. Single accommodation available at Whinney House Sanatorium. Duties will include charge, under the Senior Consultant Chest Physician, of the Whickham Chest Clinic and assistance in the Gateshead Central Chest Clinic.

Applications, together with names and addresses of referees (preferably), or testimonials, to a total of 3, to be sent to the Senior Administrative Medical Officer, "Blythswood South" Osborne-road, Newcastle upon Tyne, 2, immediately.

MANCHESTER REGIONAL HOSPITAL BOARD.

(a) Part-time (8 half-days weekly) post of CONSULTANT E.N.T. SURGEON to the Lancaster and Kendal Hospital Centre (Royal Lancaster Infirmary, Queen Victoria Hospital, Morecambe, and Westmorland County Hospital, Kendal, &c.). An E.N.T. Unit of 20 Beds with new theatre is being provided at Beaumont Hospital, Lancaster, and there will also be duties at Kendal and Morecambe. Wide experience and higher qualifications essential. Appointee to live in area. 1st November, 1954.

(b) Whole-time Additional CONSULTANT PATHOLOGIST to the Bolton and District Hospital Centre (Group Laboratory at Bolton Royal Infirmary). Experience in all branches of hospital pathology desirable. 8th November, 1954.

(c) Whole-time NON-RESIDENT ASSISTANT ANÆSTHETIST, Lancaster and Kendal Hospitals (hospitals as for post (a), together with Lancaster Moor Mental Hospital). Qualification in anæsthetics desirable. Successful candidate will work under general guidance of Consultants and will be required to live in or very near Lancaster. Salary £1500 (at age 32)–£50–£1950 p.a. 15th November, 1954.

Application forms from the Senior Administrative Medical Officer to the Board at Cheetwood-road, Manchester, 8, to be returned by dates stated.

ST. HELENS. PROVIDENCE HOSPITAL. Applications invited for post of HONORARY CONSULTANT GYNÆCOLOGIST at above Hospital. The Hospital has 125 Beds and an Outpatients Department and the appointment will be for 2 notional half-days per week exclusive of emergencies.

Applications, giving full details of qualifications and experience, and names and addresses of 2 referees, should be forwarded to undersigned not later than 30th October, 1954.

WILLIAM I. LIVESEY, Honorary Secretary.

Providence Hospital, St. Helens.

SHEFFIELD REGIONAL HOSPITAL BOARD. Consultant OBSTETRICIAN AND GYNÆCOLOGIST required for 7 notional half-days per week. The successful candidate will have charge of gynæcological beds at the Scunthorpe and District War Memorial Hospital and the Glandford Hospital, Brigg; and obstetrical beds at the Scunthorpe Maternity Home.

Application forms and further details from Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, 10. Forms to be returned by 13th November, 1954.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time SENIOR CASUALTY OFFICER for Derbyshire Royal Infirmary. Married accommodation available. Salary within the range £1500–£1950. Tenure for a period not exceeding 4 years.

Application forms and further details from Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, 10. Forms to be returned by 20th November, 1954.

SCOTLAND. WESTERN REGIONAL HOSPITAL BOARD. Applications are invited for the following appointments :—

CONSULTANT ORTHOPÆDIC SURGEON to the Royal Hospital for Sick Children and the Western Infirmary, Glasgow; the appointment to be combined with the Barclay Lectureship in Orthopædics. The appointment will be part-time remunerated on the basis of 7 notional half-days per week.

Whole-time ASSISTANT PSYCHIATRIST based at Lennox Castle Institution, near Glasgow. Salary (at age 32 and over) on the scale £1500–£50–£1950.

Whole-time ASSISTANT in Geriatrics, Shieldhall Hospital, Glasgow. Salary (at age 32 and over) on the scale £1500–£50–£1950.

Whole-time CONSULTANT ANÆSTHETIST for duties in the Lanarkshire Area, based at Law Hospital, Carluke.

Whole-time CONSULTANT ANÆSTHETIST, based at Stobhill Hospital, Glasgow.

CONSULTING SURGEON in charge of Wards at the Royal Alexandra Infirmary, Paisley. The appointment will be part-time remunerated on the basis of 8 notional half-days per week.

CONSULTANT PHYSICIAN to the Homœopathic Hospital, Glasgow. The appointment will be part-time remunerated on the basis of 5 notional half-days per week.

ASSISTANT PHYSICIAN to the Homœopathic Hospital, Glasgow. The appointment will be part-time remunerated on the basis of 5 notional half-days per week. Salary (at age 32 and over) on the scale £1500–£50–£1950.

These appointments are subject to the National Health Service (Scotland) superannuation regulations.

Applications (16 copies), stating date of birth, qualifications experience, present appointment, and the names of 3 referees, to reach the Secretary, Western Regional Hospital Board, 64, West Regent-street, Glasgow, not later than 30 days after the publication of this advertisement.

WELSH REGIONAL HOSPITAL BOARD. Whole-time ASSISTANT CHEST PHYSICIAN (Senior Hospital Medical Officer), Llanelly area. Duties include attendance at Llanelly and Ammanford Chest Clinics and general hospitals in area. Close association with Thoracic Unit, Morriston Hospital, Swansea.

Applications (12 copies), naming 3 referees, to Senior Administrative Medical Officer, Temple of Peace, Cathays Park, Cardiff, within 21 days.

SCOTLAND. SOUTH-EASTERN REGIONAL HOSPITAL BOARD. Applications are invited for a whole-time appointment of ASSISTANT PSYCHIATRIST (Senior Hospital Medical Officer grade) to Stratheden Hospital, Fife. This Hospital of approximately 900 Beds serves the County of Fife and, in addition, there is an associated mental deficiency hospital of approximately 90 beds. The staff of this hospital attends outpatient clinics in the main centres in Fife, certain of these clinics being devoted to child guidance. The appointment is subject to the terms and conditions of the National Health Service.

Applications, giving particulars of age, qualifications and previous experience, together with the names of 3 referees, should be submitted to the Secretary, South-Eastern Regional Hospital Board, Scotland, 11, Drumsheugh-gardens, Edinburgh, 3, by 13th November.

NORTHERN IRELAND HOSPITALS AUTHORITY. Applications are invited for a post as ASSISTANT SURGEON at hospitals managed by the East Antrim Hospital Management Committee. The appointment will be in the grade of Senior Hospital Medical Officer and the terms and conditions will be in accordance with the application of the Spens report to Northern Ireland.

Applications to be made on a form obtainable (with further particulars) from the Secretary, Northern Ireland Hospitals Authority, 44–46, Queen-street, Belfast, and to be returned not later than 18th November, 1954.

NORTHERN IRELAND HOSPITALS AUTHORITY. Applications are invited for the whole-time post of SECOND CONSULTANT PSYCHIATRIST to the Special Care Service (under the Mental Health Act (Northern Ireland), 1948) for persons suffering from arrested or incomplete development of mind. The terms, conditions of service and remuneration will be in accordance with the Authority's application of the Spens Report to Northern Ireland.

Applications to be made on a form obtainable (with further particulars) from the Secretary, Northern Ireland Hospitals Authority, 44–46, Queen-street, Belfast, and to be returned not later than 18th November, 1954.

AUSTRALIA. THE ROYAL WOMEN'S HOSPITAL, MELBOURNE, AUSTRALIA. (6700 confinements annually.) The post of ASSISTANT PATHOLOGIST will become vacant early in 1955. The Department of Pathology consists of Sections of Morbid Anatomy and Histology, Hæmatology, Bacteriology and Biochemistry. In the first-named section about 4500 specimens are examined annually. The salary will depend on qualifications and experience, but is likely to be about £A1500.

Medical graduates with some experience in morbid anatomy and histology and especially in hæmatology are invited to submit, as soon as possible, full particulars to the Director of Pathology, from whom further information may be obtained.

A. J. CUNNINGHAM, Manager and Secretary.

WESTERN AUSTRALIA. PRINCESS MARGARET HOSPITAL FOR CHILDREN, PERTH, WESTERN AUSTRALIA. The Board of Management invites inquiries from qualified medical practitioners for the whole-time post of PATHOLOGIST. Intending candidates must have previous experience and furnish details of higher qualifications. Salary £2500 (Australian) p.a.—subject to cost-of-living adjustments. Reasonable travelling expenses allowed if appointee enters into bond to serve for a minimum of 2 years.

Inquiries as to further general and medical detail should be addressed, by air mail, to J. D. CLARKSON, Manager.

WESTERN AUSTRALIA. PRINCESS MARGARET HOSPITAL FOR CHILDREN, PERTH, WESTERN AUSTRALIA. The Board of Management invites applications for 2 newly created whole-time posts of SENIOR HOSPITAL MEDICAL OFFICER. Salary £1745 (Australian) p.a. (subject to cost-of-living variation) provided candidates have sufficient qualifications and experience. Accommodation available for single persons at a cost of £139 p.a. Generous travelling allowances where the appointee is prepared to serve a minimum term.

Applications in writing and addressed, by air mail, to the undersigned, should detail personal particulars, qualifications, experience, &c., and include the names of 2 referees.

J. D. CLARKSON, Manager.

NEW ZEALAND. COOK HOSPITAL BOARD, Gisborne, NEW ZEALAND. Applications, closing Friday, 19th November, 1954, are invited from registered medical practitioners for the appointment of Full-time ANÆSTHETIST. Salary in accordance with the Hospital Employment Regulations. Salary rate for the following gradings :—

Senior Registrar £1048 5s.–£1163 5s.
Junior Specialist £1352 12s.–£1652 12s.

Amounts quoted are in New Zealand currency. The position is non-resident. Gisborne, with a population of 21,000, is situated on the sea coast, and enjoys an ideal climate.

Conditions of appointment will be supplied on application to the High Commissioner for New Zealand, 415, Strand, London, W.C.2, quoting reference No. A 3/65/10 and mentioning this paper. Applications to be sent direct to the Secretary, Cook Hospital Board, Gisborne, New Zealand.

Hospital Services : Junior Appointments

BROMPTON HOSPITAL, S.W.3. Applications are invited for the post of ASSISTANT RESIDENT MEDICAL OFFICER (Senior House Officer grade). Appointment is for 6 months from 1st January, 1955. Experience in artificial pneumothorax essential and in E.N.T. work desirable. Duties also include work in Tuberculosis Dispensary and wards.

Applications, stating age, qualifications with dates, nationality and appointments held, together with copies of testimonials, by 6th November, to—

KENNETH A. F. MILES, House Governor.

BETHLEM ROYAL HOSPITAL AND THE MAUDSLEY HOSPITAL. Applications are invited from registered medical practitioners for the appointment of SENIOR HOUSE OFFICER, commencing on 1st January, 1955, at the above Postgraduate Teaching Hospital, with which is associated the Institute of Psychiatry (University of London). Applicants should intend to take a full training in psychiatry. Experience in general medicine and neurology or in the basic sciences is an advantage.

Applications, giving details of experience, and the names of 3 referees, should be made within 1 week of the appearance of this advertisement. Application forms obtainable from K. J. JOHNSON, House Governor and Secretary, Maudsley Hospital, Denmark Hill, London, S.E.5.

BETHLEM ROYAL HOSPITAL AND THE MAUDSLEY HOSPITAL. Applications are invited from registered medical practitioners for the appointment of REGISTRAR, commencing on 1st January, 1955, at the above Postgraduate Teaching Hospital, with which is associated the Institute of Psychiatry (University of London). Candidates with experience in general medicine and neurology or in psychology will receive special consideration.

Applications, giving details of experience and the names of 3 referees, should be made within 1 week of the appearance of this advertisement. Application forms obtainable from K. J. JOHNSON, House Governor and Secretary, Maudsley Hospital, Denmark Hill, London, S.E.5.

BETHLEM ROYAL HOSPITAL AND THE MAUDSLEY HOSPITAL. Applications are invited from registered medical practitioners for the appointment of SENIOR REGISTRAR (first year), commencing on 1st January, 1955, at the above Postgraduate Teaching Hospital, with which is associated the Institute of Psychiatry (University of London). Candidates should have a higher medical qualification, and experience in psychiatry is essential.

Applications, giving details of experience and the names of 3 referees, should be made within 1 week of the appearance of this advertisement. Application forms obtainable from K. J. JOHNSON, House Governor and Secretary, Maudsley Hospital, Denmark Hill, London, S.E.5.

CHARING CROSS HOSPITAL GROUP. Pre-registration House posts tenable for 6 months from 15th December, 1954 :—

(*a*) **Charing Cross Hospital**
HOUSE PHYSICIAN to the Radiological Department (candidates taking the D.M.R. will be given time off to attend lectures).

(*b*) **Mount Vernon Hospital**
HOUSE SURGEON to the Gynæcological Department. Recognised for the M.R.C.O.G.
HOUSE PHYSICIAN to the Children's Ward.
HOUSE PHYSICIAN.
HOUSE SURGEON.

(*c*) ***Kingsbury* Maternity Hospital**
2 HOUSE OFFICERS. Recognised for M.R.C.O.G. and D.Obst.R.C.O.G.

(*d*) **Harrow Hospital**
HOUSE SURGEON.
HOUSE SURGEON (from 1st January, 1955).
HOUSE PHYSICIAN (from 27th December, 1954).

Application forms obtainable from the undersigned should be returned by 18th November, 1954.

FRANK HART, Secretary to the Board.

Charing Cross Hospital, W.C.2.

CHARING CROSS HOSPITAL GROUP. Harrow Hospital. CASUALTY OFFICER (Junior Hospital Medical Officer), non-resident. Tenable from 1st January, 1955.

Application forms to be returned to the undersigned by 27th November, 1954.

FRANK HART, House Governor and Secretary to the Board.

CHARING CROSS HOSPITAL GROUP. Applications are invited for the following resident appointments, tenable at Wembley Hospital, for 6 months from 15th December, 1954.

HOUSE PHYSICIAN.
3 HOUSE SURGEONS.

Pre-registration appointments. Salary in accordance with the terms and conditions of service of hospital medical staff and subject to deduction for board-residence.

Application forms may be obtained from the undersigned and should be completed and returned by 18th November, 1954.

FRANK HART, Secretary to the Board of Governors.

Charing Cross Hospital, London, W.C.2.

CHILDREN'S HOSPITAL, Sydenham, S.E.26. (100 Beds.) SENIOR RESIDENT MEDICAL OFFICER (Senior House Officer grade) required 1st December for 1 year. Duties include medicine and surgery. Recognised for D.C.H. Previous pædiatric experience essential.

Apply, naming 2 referees, to Administrative Officer by 28th October.

CENTRAL MIDDLESEX HOSPITAL, Park Royal, N.W.10. RESIDENT HOUSE OFFICER required in General Surgical Department. Appointment for 6 months from 1st December, 1954. Pre-registration candidates will be considered.

Applications, with a copy each of 2 testimonials, to Medical Director by 30th October, 1954.

GROUP LABORATORY, MILE END HOSPITAL, Bancroft-road, London, E.1. RESIDENT ASSISTANT PATHOLOGIST (Senior House Officer grade). Previous experience an advantage but not essential. Laboratory recognised for Diploma of Pathology and is well equipped with excellent training facilities. Post tenable for 1 year in first instance.

Applications, stating age, nationality, qualifications, and experience, together with names of 2 referees, to the Secretary, Stepney Group Hospital Management Committee, Raine-street, Wapping, E.1.

ELIZABETH GARRETT ANDERSON HOSPITAL, Euston-road, N.W.1. (ROYAL FREE HOSPITAL GROUP.) Applications are invited from registered Women medical practitioners for the post of Full-time PATHOLOGICAL REGISTRAR (non-resident). Appointment for 1 year in the first instance, to commence 1st January, 1955. Salary in accordance with Ministry of Health scale for Registrars.

Applications, with names of 3 referees, should be sent to the Secretary, Elizabeth Garrett Anderson Hospital, by 5th November, 1954.

GUY'S-MAUDSLEY NEUROSURGICAL UNIT. Applications are invited for the post of SENIOR HOUSE OFFICER for 6 months commencing 1st December, 1954. The Unit, which is housed in the Maudsley Hospital, serves Guy's Hospital and the Bethlem Royal Hospital and the Maudsley Hospital.

Applications to K. J. JOHNSON, House Governor and Secretary, Denmark Hill, London, S.E.5.

HACKNEY GROUP HOSPITAL MANAGEMENT COMMITTEE. CLINICAL ASSISTANTS (E.N.T.). Applications are invited from registered medical practitioners for the following Clinical Assistant (E.N.T.) sessions :—

Monday morning (Hackney Hospital).
Monday afternoon (Eastern Hospital).
Thursday morning (Hackney Hospital).
Friday morning (Hackney Hospital).

£175 p.a. per weekly half-day.

Apply Group Secretary, Hackney Hospital Management Committee, London, E.9, by 2nd November, stating sessions for which available.

HAMMERSMITH HOSPITAL AND INSTITUTE OF OBSTETRICS AND GYNÆCOLOGY, Ducane-road, London, W.12.

HOUSE OFFICER (obstetrics), required 15th December. Post recognised for M.R.C.O.G.

2 HOUSE OFFICERS (gynæcology), required 1st January. Posts recognised for M.R.C.O.G.

Applications, stating age, qualifications, experience, copies of 2 recent testimonials, to Secretary, Board of Governors, by 6th November.

HIGHLANDS GENERAL HOSPITAL, Winchmore-hill, London, N.21. ANÆSTHETIST (House Officer grade), resident, required. 100 active surgical and orthopædic beds, approximately 1200 operations annually.

Applications, with copies of 3 testimonials, to Hospital Secretary.

KING EDWARD MEMORIAL HOSPITAL, Ealing. SOUTH WEST MIDDLESEX HOSPITAL MANAGEMENT COMMITTEE. HOUSE PHYSICIAN, vacant 1st December. Preference given to persons seeking pre-registration post under Medical Act, 1950.

Applications, stating age, nationality, qualifications with dates and details of experience, together with copies of 2 recent testimonials, to Group Secretary, West Middlesex Hospital, Isleworth, Middlesex, by 9th November, 1954.

LONDON CHEST HOSPITAL. Hospitals for Diseases OF THE CHEST. Applications are invited for the appointment of RESIDENT MEDICAL OFFICER. Appointment for 1 year from 1st January, 1955, and graded as Registrar.

Applications, stating age, qualifications with dates, and previous appointments held, with copies of 3 testimonials, should be sent to the undersigned not later than 13th November, 1954. THOMAS BROWN, House Governor.

London Chest Hospital, E.2.

LONDON CHEST HOSPITAL. Hospitals for Diseases OF THE CHEST. 2 vacancies occur 1st December, 1954, for RESIDENT HOUSE PHYSICIAN. Appointments for 6 months, 4 in London, 2 at the Country Branch, near Letchworth, and posts are graded as House Officer. Duties include work in the Outpatient Department and Refill Clinic as well as in wards.

Applications, stating age, qualifications with dates, and previous appointments held, with copies of 3 testimonials, should be forwarded at once to THOMAS BROWN, House Governor.

London Chest Hospital, E.2.

LONDON JEWISH HOSPITAL, Stepney Green, E.1. (130 Beds.) HOUSE SURGEON (pre-registration or first, second, or third) required for 6 months commencing 5th November, 1954.

Applications, with copies of testimonials, to be sent to the Hospital Secretary.

LAMBETH HOSPITAL, Brook-drive, S.E.11. South WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Transitional SENIOR MEDICAL REGISTRAR. Applications are invited from Senior Registrars in their fourth or subsequent years in general medicine and from others who, although not now Senior Registrar, have occupied such appointments for 3 or more years and have vacated them since 6th November, 1950. Experience in pædiatrics would be an asset.

Forms of application from the Secretary at the Hospital, to be returned by 5th November.

LAMBETH HOSPITAL, Brook-drive, S.E.11. Applications are invited for appointment of RESIDENT CASUALTY OFFICER at above Hospital from 8th November, 1954. Senior House Officer grade. Recognised for the F.R.C.S.

Forms of application from the Physician-Superintendent.

MEMORIAL HOSPITAL, Woolwich, S.E.18. Casualty OFFICER, vacant 17th November. 6 months appointment, recognised for F.R.C.S. Senior House Officer grade, salary £745 p.a., less £150 p.a. for residence.

Apply to Secretary.

ROYAL MARSDEN HOSPITAL, Fulham-road, London, S.W.3. Applications are invited from registered medical practitioners for the 2 posts of HOUSE SURGEON (resident). Salary £525 p.a. The posts are tenable for 6 months from 28th November and 13th December, 1954, respectively.

Forms of application are obtainable from the House Governor to whom applications, together with copies of 3 recent testimonials, should be sent not later than Friday, 12th November.

MIDDLESEX HOSPITAL, W.1. Applications are invited for the post of ASSISTANT to the Professorial Medical Unit, vacant now. Commencing salary within the range of £900–£1200 p.a., according to age and experience.

Applications, stating age, qualifications, &c., and nominating 3 referees, should reach the Secretary of the Medical School by NOON on Saturday, 6th November, 1954.

ROYAL NATIONAL THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.1, and Golden-square, W.1. RESIDENT HOUSE SURGEON (second or subsequent post). There will be a vacancy on 1st November, 1954. 6 months appointment, with salary as laid down for House Officer grades in the terms and conditions of service under the National Health Service.

Applications, stating age, qualifications, full details of previous experience (particularly in this specialty), with copies of 1–3 recent testimonials, should reach the House Governor by 26th October, 1954.

ROYAL NATIONAL THROAT, NOSE AND EAR HOSPITAL AND THE INSTITUTE OF LARYNGOLOGY AND OTOLOGY, Gray's Inn-road, W.C.1, and Golden-square, W.1. Applications are invited for a post of REGISTRAR or alternatively SENIOR HOUSE OFFICER—a higher surgical qualification is required for the former grading and at least the Primary F.R.C.S. for the latter. Considerable clinical experience in general surgery and in this specialty is required for either post. The appointment will be in accordance with the terms and conditions of service for the appropriate grade in the National Health Service.

Applications, giving full information and the names of 2 referees, should be sent to the House Governor without delay.

ROYAL FREE HOSPITAL GROUP. Applications are invited from Men and Women medical practitioners for the appointment of ANÆSTHETIC REGISTRAR (resident). Applicants should possess the D.A. qualification. The appointment is for 1 year in the first instance, duties to commence on 1st January, 1955. Salary and conditions of service in accordance with the terms and conditions of service laid down by the Ministry of Health.

Application forms may be obtained from the Secretary to the Board of Governors, Royal Free Hospital, Gray's Inn-road, W.C.1, to whom they should be returned not later than 5th November, 1954.

ST. JAMES' HOSPITAL, Sarsfeld-road, Balham, S.W.12. HOUSE PHYSICIAN required.

Applications, stating age, qualifications, experience, and names of 2 referees, to Group Secretary, Wandsworth Hospital Group, at above address immediately.

ST. STEPHEN'S HOSPITAL, Fulham-road, Chelsea, S.W.10. MEDICAL REGISTRAR to the Department of Physical Medicine in the Chelsea Group of hospitals. Duties include working in the Rheumatic Unit at St. Stephen's Hospital and the Geriatric Department at St. Luke's Hospital. Non-resident. Recognised for Part II of the D.Phys.Med.

Application forms from the Secretary, St. Luke's Hospital, Chelsea, S.W.3 (enclose stamped addressed envelope).

ST. THOMAS'S HOSPITAL, London, S.E.1. Obstetric HOUSE PHYSICIAN required at the General Lying-In Hospital, York-road, S.E.1, for 6 months from 17th December, 1954. Approved service for M.R.C.O.G.

Applications, including names and addresses of 2 referees, to the Clerk of the Governors by 1st November.

ST. LEONARD'S HOSPITAL, Nuttall-street, London, N.1. (General—182 Beds.) Applications are invited from registered or provisionally registered practitioners for the post of HOUSE PHYSICIAN for 6 months commencing 1st December, 1954.

Applications, with 2 recent testimonials, to Hospital Secretary by 30th October, 1954.

WEST END HOSPITAL FOR NEUROLOGY AND NEUROSURGERY, 73, Welbeck-street, W.1. CLINICAL ASSISTANT to Ophthalmologist. 1 half-day per week (Friday morning). Salary £175 p.a.

Applications, with details of experience and names of 2 referees, to Hospital Secretary by 4th November, 1954.

WESTMINSTER HOSPITAL TEACHING GROUP. WESTMINSTER CHILDREN'S HOSPITAL.

CASUALTY OFFICER, required for 6 months from 1st January, 1955. Grade : House Officer (post-registration) or Senior House Officer, dependent on experience.

2 HOUSE PHYSICIANS (both second pre-registration), required for 6 months from 1st December, 1954.

Applications, with copies of testimonials, should reach the Secretary, Westminster Children's Hospital, Vincent-square, S.W.1, by 6th November.

WHITTINGTON HOSPITAL, N.19. North West Metropolitan REGIONAL HOSPITAL BOARD. SENIOR REGISTRAR (non-resident) in Obstetrics and Gynæcology at above Hospital. 85 maternity and 52 gynæcological beds with busy Outpatient Department. Post vacant 5th November, 1954. Candidates should hold M.R.C.O.G. Must live within reasonable distance from Hospital and may be required to sleep in on occasions. Hospital may be visited by arrangement with Medical Superintendent.

Application forms obtainable from, and returnable to, Secretary, Archway Group Hospital Management Committee, 46, Cholmeley-park, N.6, by 6th November, 1954.

WEST HAM GROUP HOSPITAL MANAGEMENT COMMITTEE, Stratford, London, E.15. 2 ANÆSTHETISTS (resident ; Senior House Officer grade) for 12 months from 1st December. 6 months duty at Queen Mary's Hospital for the East End followed by 6 months at East Ham Memorial Hospital or vice versa. Combined post recognised for F.F.A.R.C.S.

Applications, with names of 3 referees, to Group Secretary, West Ham Group Hospital Management Committee, Stratford, E.15, by 6th November, 1954.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.1. There will be a vacancy for a Whole-time ASSISTANT MEDICAL REGISTRAR (Registrar grade), falling vacant immediately.

Further particulars and form of application, which must be returned not later than Monday, 1st November, 1954, may be obtained from the undersigned.

H. F. RUTHERFORD, House Governor and Secretary.

ARLESEY, BEDFORDSHIRE. THREE COUNTIES HOSPITAL (MENTAL). (1350 Beds.) NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. REGISTRAR in Psychiatry (resident or non-resident) required at above Hospital. All forms of treatment carried out and outpatient clinics held at the local general hospitals. Facilities for research work and for attendance at D.P.M. and other courses in London. Hospital may be visited by direct appointment.

Application forms obtainable from, and returnable to, Medical Superintendent, Three Counties Hospital, Arlesey, Beds, by 3rd November, 1954.

ALTON, HAMPSHIRE. LORD MAYOR TRELOAR ORTHOPÆDIC HOSPITAL. Applications are invited from registered medical practitioners for the post of Whole-time ORTHOPÆDIC REGISTRAR. Post provides experience in non-pulmonary tuberculosis and general orthopædics and includes attendances at peripheral clinics. Accommodation available. Canvassing disqualifies, but visit to Hospital welcomed.

Write to Secretary for application form.

ALTON, HAMPSHIRE. LORD MAYOR TRELOAR ORTHOPÆDIC HOSPITAL. LOCUM for Orthopædic Registrar required immediately at the above Hospital for 3 months. Good surgical experience required. Post provides experience in non-pulmonary tuberculosis and general orthopædics and includes attendances at peripheral clinics. Salary £16 per week, less emoluments.

Apply at once, with names of 2 referees, to the Secretary, Lord Mayor Treloar Orthopædic Hospital, Alton, Hants.

AYLESBURY, BUCKINGHAMSHIRE. ROYAL BUCKINGHAMSHIRE HOSPITAL. HOUSE SURGEON to the Department of Ophthalmology which is centred on this Hospital and which conducts work at peripheral clinics. Vacant now. Post is recognised for D.O. and duties will include some children's surgery.

Applications, with 2 testimonials, to Secretary-Superintendent as soon as possible.

BARROW-IN-FURNESS. NORTH LONSDALE HOSPITAL. BARROW AND FURNESS HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for a post of SENIOR HOUSE SURGEON at the above Hospital. Post recognised for F.R.C.S. National conditions and salary scale.

Applications to Group Secretary, 52, Paradise-street, Barrow-in-Furness.

BARNSTAPLE. NORTH DEVON INFIRMARY. (Central Group Hospital of 110 Beds.) Applications invited for appointment of SENIOR HOUSE OFFICER who will advise the House Physician and House Surgeon in their work and whose duties will include responsibility for work in Surgery, Casualty, Midwifery and Gynæcology, and E.N.T. Departments. Post vacant 1st January, 1955, for 1 year. Salary £745 p.a. Furnished flat available.

Applications, including names of 3 referees, to Group Secretary, 19, Alexandra-road, Barnstaple.

BEDFORD GENERAL HOSPITAL. (437 Beds.) North WEST METROPOLITAN REGIONAL HOSPITAL BOARD. REGISTRAR required for busy acute Orthopædic and Traumatic Department at above Hospital. Previous orthopædic experience desirable. Cand dates may visit Hospital by appointment with the Group Secretary.

Application forms obtainable from, and returnable to, Group Secretary, Bedford Group Hospital Management Committee, 3, Kimbolton-road, Bedford, as soon as possible.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street, BIRMINGHAM, 3. (156 Beds.) SENIOR HOUSE OFFICER required. Experience in ophthalmology essential.

Detailed applications, with names of 2 referees, to Secretary, Dudley Road Hospital, Birmingham, 18.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street, BIRMINGHAM, 3. HOUSE SURGEON required on 8th December. Appointment for 6 months, but renewable. Hospital carries resident staff of 5 and provides a 2-year course of instruction recognised for the D.O. (England) and F.R.C.S. (England) in Ophthalmology. Wide experience available in all branches, including surgery.

Detailed applications to Secretary, Dudley Road Hospital, Birmingham, 18.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. Applications are invited for the non-resident post of SENIOR HOUSE OFFICER or REGISTRAR in Pædiatrics (grading according to experience) for duties at the Birmingham Maternity Hospital, Loveday-street, and the Maternity Department of the Queen Elizabeth Hospital. Previous experience, resident, in a Children's Hospital is essential, and candidates should hold the D.C.H. Post vacant immediately.

Applications, stating age, nationality, qualifications and previous appointments, should be forwarded to the House Governor, Birmingham and Midland Hospitals for Women, Showell Green-lane, Birmingham, 11, not later than 1st November, 1954.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. THE CHILDREN'S HOSPITAL. HOUSE OFFICER (casualty) required to commence duty on 7th January, 1955, for 6 months. Recognised for pre-registration students, but registered practitioners may apply.

Forms of application may be obtained from the House Governor, The Children's Hospital, Ladywood-road, Birmingham, 16, and should be returned not later than 30th October, 1954. G. A. PHALP, Secretary to the Board of Governors.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. THE QUEEN ELIZABETH HOSPITAL. Applications are invited for the post of RESIDENT CLINICAL PATHOLOGIST (Senior House Officer) in the Department of Bacteriology and Clinical Pathology. Previous experience in clinical pathology is not essential, but applicants should have had hospital post-graduate experience. The appointment will be for 12 months from 1st January, 1955.

Application forms may be obtained from the Secretary, United Birmingham Hospitals, Queen Elizabeth Hospital, Birmingham, 15, and should be returned to him not later than 31st October, 1954.

BIRMINGHAM. UNITED BIRMINGHAM HOSPITALS. THE BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN, Showell Green-lane, BIRMINGHAM, 11. Applications are invited from registered medical practitioners for the post of RESIDENT GYNÆCOLOGICAL HOUSE SURGEON (2 vacancies) occurring on 7th January, 1955. The posts are recognised for D.Obst.R.C.O.G. and M.R.C.O.G.

Application forms, obtainable from the House Governor at the above address, should be returned not later than 1st November, 1954. G. A. PHALP, Secretary.

BIRMINGHAM REGIONAL HOSPITAL BOARD.

(1) **Birmingham (Selly Oak) Hospital Management Committee, Oak Tree-lane, Birmingham, 29**

Whole-time REGISTRAR in E.N.T. Surgery. Duties in E.N.T. Department, Selly Oak Hospital (1090 Beds, including 39 E.N.T. beds). Successful candidate will spend approximately half-time in Otological Clinics in large factories in connection with M.R.C. investigations. Non-resident. Experience specialty and higher qualification an advantage.

(2) **Shrewsbury Group Hospital Management Committee, Royal Salop Infirmary, Shrewsbury**

REGISTRAR in Radiology (radiodiagnosis), Shrewsbury Group and Robert Jones and Agnes Hunt Orthopædic Hospital, Oswestry. Resident or non-resident.

(3) **Wolverhampton Group Hospital Management Committee, The Royal Hospital, Wolverhampton**

(*a*) RESIDENT SURGICAL REGISTRAR for New Cross Hospital (636 Beds) with some duties at The Royal Hospital (310 Beds), preferably F.R.C.S. Vacant now.

(*b*) REGISTRAR in Diagnostic Radiology for The Royal Hospital, vacant now. At least Part I of Diploma of Medical Radiology essential. Hospital recognised for Part II. Duties also at other Group hospitals.

Application forms from Group Secretaries, to be returned before 8th November, 1954. Candidates may visit hospitals.

BIRMINGHAM. DUDLEY ROAD GROUP OF HOSPITALS. Whole-time SENIOR REGISTRAR in General Surgery. Duties mainly at Dudley Road Hospital (790 Beds). Resident/non-resident. Wide experience specialty and higher qualification required. The successful candidate may subsequently be required to spend not more than 2 years in a selected hospital of the United Birmingham Hospitals in accordance with the interchange of Registrars agreed between the 2 Boards.

Application forms from Secretary, Birmingham Regional Hospital Board, 10, Augustus-road, Birmingham, 15, to be returned before 8th November, 1954.

BIRMINGHAM. SOLIHULL HOSPITAL, Lode-lane. (210 Beds.) CASUALTY OFFICER (Junior Hospital Medical Officer grade). General Hospital with 5 resident medical staff.

Applications to the Medical Superintendent.

BISHOP'S STORTFORD AND DISTRICT HOSPITAL, Rye-street, BISHOP'S STORTFORD, HERTS. (67 Beds—medical, surgical and maternity. Midway between London and Cambridge. Main Line Railway from Liverpool Street.) Applications are invited from registered medical practitioners for a RESIDENT HOUSE OFFICER (not pre-registration). Appointment to commence as soon as possible.

Applications, stating age, nationality, qualifications and experience, with copies of recent testimonials or names of referees, should be sent to Hospital Secretary, Haymeads Hospital, Bishop's Stortford, Herts.

BISHOP'S STORTFORD, HERTFORDSHIRE. HAYMEADS HOSPITAL. (Midway between London and Cambridge. Main Line Railway from Liverpool Street.) Applications are invited for post of HOUSE OFFICER (surgical—first or second post held). Pre-registration post. Salary £425–£525 p.a., less £125 in respect of residential emoluments. Appointment to commence 29th November, 1954.

Applications, stating age, nationality, qualifications and experience, with copies of recent testimonials or names of referees, to Hospital Secretary.

BISHOP AUCKLAND GENERAL HOSPITAL. (350 Beds.) SOUTH WEST DURHAM HOSPITAL MANAGEMENT COMMITTEE. RESIDENT ANÆSTHETIST (Senior House Officer) required.

Apply, naming 2 referees, to—

K. G. T. LUXFORD, Group Secretary/Finance Officer.

The General Hospital, Bishop Auckland, Co. Durham.

BLACKBURN. ROYAL INFIRMARY. (262 acute beds.) BLACKBURN AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (surgery) required early in November at above Infirmary.

Apply to Secretary, Hospital Management Committee Office, Royal Infirmary, Blackburn.

BLACKBURN. ROYAL INFIRMARY. (262 acute beds.) BLACKBURN AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. REGISTRAR (surgery) required early in November at above Infirmary. Recognised for F.R.C.S.

Apply to Secretary, Hospital Management Committee Office, Royal Infirmary, Blackburn.

BURTON-ON-TRENT GENERAL INFIRMARY. RESIDENT ANÆSTHETIST (Junior Hospital Medical Officer). Non-resident considered. Recognised for F.F.A.R.C.S.

Applications to Group Secretary.

BOSTON. GENERAL HOSPITAL. (80 Beds.) Sheffield REGIONAL HOSPITAL BOARD. Whole-time RESIDENT REGISTRAR (general surgery and E.N.T.) required, with relief duties in the Casualty Department. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 1st November, 1954, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. ROYAL VICTORIA HOSPITAL, WEST-BOURNE, HANTS. Applications are invited for the immediate appointment of HOUSE SURGEON for E.N.T. and ophthalmic duties. In addition to duties at the above Hospital, the successful candidate will be required to assist in the E.N.T. outpatient clinics at the Royal Victoria Hospital, Bournemouth, and Poole General Hospital, Poole. The appointment is recognised for the D.O. and D.L.O. Diplomas but not for pre-registration purposes.

Applications to the Deputy Hospital Secretary, Royal Victoria Hospital, Shelley-road, Bournemouth.

BRAINTREE, ESSEX. BLACK NOTLEY HOSPITAL. (544 Beds.) Applications invited for post of HOUSE OFFICER (orthopædic surgery). First, second, third, or pre-registration post; tenable for 6 months. Recognised for F.R.C.S.

Applications, with copies of 3 testimonials, should be forwarded to the Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

BRISTOL CLINICAL AREA. The Board of Governors OF THE UNITED BRISTOL HOSPITALS AND THE SOUTH-WESTERN REGIONAL HOSPITAL BOARD. Applications are invited by the above Boards from registered medical practitioners for the joint appointment of REGISTRAR in the Department of Neurological Surgery at Frenchay Hospital, Bristol. The appointment will be held for 1 year in the first instance, and be renewable for a further year. The post is open also to those training for a career in medicine.

Applications, stating date of birth, qualifications and experience, together with the names and addresses of 2 referees, should be sent to the Secretary of the Regional Hospital Board, 27, Tyndalls Park-road, Bristol, 8, not later than 6th November, 1954.

CARSHALTON, SURREY. ST. HELIER HOSPITAL, Wrythe-lane. SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of SURGICAL REGISTRAR (non-resident) to the Thoracic Unit.

Forms of application, returnable within 14 days of the appearance of this advertisement, may be obtained from the Group Secretary at the above address.

CANTERBURY. KENT AND CANTERBURY HOSPITAL. (276 Beds.) EAR, NOSE AND THROAT AND EYE DEPARTMENTS. SENIOR HOUSE OFFICER. Salary £745 p.a. Post vacant early December, 1954. Approved for F.R.C.S. and special diplomas.

Applications, together with copies of 2 recent testimonials, to be addressed to the Hospital Secretary at the above Hospital.

CANTERBURY. KENT AND CANTERBURY HOSPITAL. (276 Beds.) OBSTETRIC HOUSE SURGEON. The above post, which is recognised for the M.R.C.O.G. and D.Obst.R.C.O.G., becomes vacant at the end of November, 1954. National Health Service salary and conditions.

Applications, together with 2 recent testimonials, to be addressed to the Hospital Secretary at the above Hospital.

CANTERBURY. KENT AND CANTERBURY HOSPITAL. (276 Beds.) GENERAL SURGICAL AND ORTHOPÆDIC HOUSE SURGEON. The above post, which is recognised for the F.R.C.S. Diploma, becomes vacant in mid-November. National Health Service salary and conditions.

Applications, together with copies of 2 recent testimonials, to be addressed to the Hospital Secretary at the above Hospital.

CANTERBURY. KENT AND CANTERBURY HOSPITAL. (276 Beds.) PÆDIATRIC HOUSE PHYSICIAN. The above post, recognised for D.C.H., includes work in the ward and Outpatient Department and also provides experience in the care of the newborn. Opportunities exist for the study of preventive medicine among children and child guidance work. Post becomes vacant early December, 1954. National Health Service salary and conditions.

Applications, together with 2 testimonials, to be addressed to the Hospital Secretary at the above Hospital.

CHERTSEY, SURREY. ST. PETER'S HOSPITAL (late Botleys Park War Hospital). (430 Beds.) ORTHOPÆDIC HOUSE SURGEON required from 3rd November, 1954. Senior House Officer or House Officer (Intern) grade. Post recognised for F.R.C.S. and Pre-registration Service and preference given to provisionally registered candidates. Salary in accordance with terms and conditions of National Health Service.

Applications, together with names and addresses of referees, to be sent to the Physician-Superintendent, St. Peter's Hospital, as soon as possible.

CHELMSFORD HOSPITALS. Applications are invited for the post of RESIDENT ANÆSTHETIST (Senior House Officer) to large surgical units, for a period of 12 months.

Applications, stating age, sex, qualifications, and experience, with recent testimonials, should be sent to the Secretary, Chelmsford Hospital Management Committee, London-road, Chelmsford.

COLCHESTER. ESSEX COUNTY HOSPITAL. (188 Beds.) Applications invited for post of SENIOR HOUSE OFFICER to Casualty and Radiotherapy Departments. Post tenable for 6 months or 1 year. Recognised for F.R.C.S.

Applications, with copies of 3 testimonials, should be forwarded to Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

CHATHAM. ALL SAINTS' HOSPITAL. Medway and GRAVESEND HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the resident post of SENIOR HOUSE OFFICER in Anæsthetics for the Group. The principal duties will be at the above Hospital and the post will be tenable for 1 year. Salary £745 p.a.

Applications, giving full particulars, to be addressed to the Group Secretary, 20, Star-hill, Rochester, Kent.

CARDIFF. THE UNITED CARDIFF HOSPITALS. The Board of Governors invites applications for the appointment of SENIOR REGISTRAR in the Orthopædic Department.

Application forms can be obtained from the Secretary, United Cardiff Hospitals, Cardiff Royal Infirmary, Newport-road, Cardiff.

COULSDON, SURREY. NETHERNE HOSPITAL. Applications are invited for the post of HOUSE OFFICER. All modern forms of treatment carried out in this Hospital of 2000 Beds which is recognised for the D.P.M. The Physician-Superintendent will give further information or arrange for the Hospital to be visited.

Application forms from Secretary.

DARTFORD. THE SOUTHERN HOSPITAL. Locum SENIOR HOUSE OFFICER (specialty E.N.T.) required at above Hospital from 16th November until 13th December, 1954, inclusive.

Applications to the Group Secretary, Dartford Hospital Management Committee, The Bow Arrow Hospital, Dartford.

DEWSBURY, YORKSHIRE. STAINCLIFFE GENERAL HOSPITAL. HOUSE OFFICER in General Surgery (first, second, or third post), vacant 1st November, tenable for 6 months. This post is a recognised pre-registration appointment. The Hospital has a Surgical Unit of 66 Beds and is recognised for the F.R.C.S.

Applications, with full details, quoting this journal, to be sent to the Administrative Officer at the Hospital.

DEWSBURY, YORKSHIRE. THE GENERAL HOSPITAL. HOUSE OFFICER (general surgery and E.N.T.). This post is a recognised pre-registration appointment. Vacant 1st November, and tenable for 6 months.

Applications, with full details, quoting this journal, to be sent to the Administrative Officer at the Hospital.

DORKING GENERAL HOSPITAL, Horsham-road, DORKING. SENIOR HOUSE OFFICER (obstetrics and gynæcology) required 1st December. Post recognised D.Obst.R.C.O.G.

Apply Medical Superintendent.

DORCHESTER. DORSET COUNTY HOSPITAL. West DORSET GROUP HOSPITAL MANAGEMENT COMMITTEE. SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. MEDICAL REGISTRAR required (Registrar grade) at above Hospital. Salary according to experience, £850 or £965 p.a., with deduction of £160 p.a. if resident.

Application form, which should be returned, duly completed, by 6th November, 1954, from Group Secretary, West Dorset Hospital Management Committee, Damers-road, Dorchester, Dorset.

DORCHESTER. DORSET COUNTY HOSPITAL. Locum MEDICAL REGISTRAR required early November for approximately 1 month. Salary £16 per week.

Apply Group Secretary, West Dorset Hospital Management Committee, Damers-road, Dorchester, Dorset, immediately.

DUDLEY, STOURBRIDGE AND DISTRICT HOSPITAL GROUP. BIRMINGHAM REGION. Applications invited from registered practitioners, for following appointments:—

The Guest Hospital, Dudley (154 Beds)

SENIOR HOUSE OFFICER (Anæsthetist). Post now vacant.

Wordsley Hospital, near Stourbridge (478 Beds)

SENIOR HOUSE OFFICER (resident). Anæsthetist. Post now vacant. In addition to general surgery, experience is available in gynæcology and there is a major Orthopædic Unit. Regional Plastic Surgery Unit at this Hospital.

SENIOR HOUSE OFFICER (surgical).

Applications, stating age, experience, with copies of 3 recent testimonials, to Group Secretary, The Guest Hospital, Dudley, Worcs.

EDGWARE GENERAL HOSPITAL. (715 Beds.) North WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Whole-time NON-RESIDENT SURGICAL REGISTRAR required for general and genito-urinary duties at above Hospital. Hospital may be visited by direct appointment with Medical Director.

Application forms obtainable from, and returnable to, Group Secretary, Hendon Group Hospital Management Committee, Edgware General Hospital, Edgware, Middlesex, by 2nd November, 1954.

EDGWARE GENERAL HOSPITAL, Edgware, Middlesex. (715 Beds.) SENIOR SURGICAL CASUALTY HOUSE OFFICER (resident), required at above Hospital, vacant 25th October, 1954.

Apply immediately stating age, qualifications and details of experience, together with the names and addresses of 2 referees, to Group Secretary, Edgware General Hospital.

EDGWARE GENERAL HOSPITAL, Edgware, Middlesex. (715 Beds.) Locum NON-RESIDENT SURGICAL REGISTRAR required for general and genito-urinary duties at above Hospital.

Apply immediately to Medical Director.

EDGWARE GENERAL HOSPITAL, Edgware, Middlesex. RESIDENT SENIOR ANÆSTHETIC HOUSE OFFICER required at above Hospital. Candidates should have held resident appointments in general hospitals and have had special experience in administering anæsthetics. Salary £745 p.a. Deduction of £155 p.a. for board, lodging, &c. Appointment for 6 months in first instance. Post vacant 15th November, 1954.

Applications, together with names of 2 referees, to Group Secretary, Edgware General Hospital, Edgware, Middlesex, by 6th November, 1954.

EPSOM DISTRICT HOSPITAL, Dorking-road, Epsom, SURREY. 2 RESIDENT HOUSE SURGEONS required. 1 for Orthopædics, E.N.T. and Eye Departments; 1 for general surgery. Vacancies 6th December. Pre-registration posts.

Applications, stating age, qualifications and experience with copies of 2 recent testimonials, should be sent immediately to Group Secretary, at above address.

FARNBOROUGH HOSPITAL, Farnborough, Kent. (800 Beds.) ORTHOPÆDIC SENIOR HOUSE OFFICER required immediately for 6 months. Deduction for residence £150.

Apply, stating age, qualifications with dates, experience, and naming 3 referees, to the Administrative Officer.

GREAT YARMOUTH AND GORLESTON GENERAL HOSPITAL, DENE SIDE, GREAT YARMOUTH. HOUSE SURGEON (Male or Female) required. The Hospital is staffed by a Consultant General Surgeon and a Consultant E.N.T. Surgeon, and is regularly visited by Consultant staff from the Norfolk and Norwich Hospital. The post is a pre-registration post at a salary of £425, £475, or £525 p.a., according to experience, less £125 p.a. for residence. Membership of a Medical Defence Society is a condition of appointment.

Applications, stating age, qualifications, and experience, with names of 2 referees, to Hospital Secretary.

GRIMSBY GENERAL HOSPITAL. Grimsby Hospital MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER for casualty duties required immediately. Resident post. Recognised by Royal College of Surgeons for the Final Fellowship examination. Hours: Normally 9 A.M.–6 P.M. Monday–Friday; 9 A.M.–12 NOON Saturday, sharing night duty on rota with all other resident staff. Establishment consists of Senior Hospital Medical Officer (casualty) and the post now being advertised. The Hospital possesses a well-equipped medical library.

Applications, with the names and addresses of 2 referees to the Hospital Secretary, Grimsby General Hospital.

GREENFORD. PERIVALE MATERNITY HOSPITAL. SOUTH WEST MIDDLESEX HOSPITAL MANAGEMENT COMMITTEE. HOUSE OFFICER, vacant 1st December. Post recognised for M.R.C.O.G. and D.Obst.R.C.O.G. Preference given to persons seeking second pre-registration post under Medical Act, 1950.

Applications, stating age, nationality, qualifications with dates and details of experience, together with copies of 2 recent testimonials, to Group Secretary, West Middlesex Hospital, Isleworth, Middlesex, by 9th November, 1954.

HAREFIELD HOSPITAL REGIONAL THORACIC SURGICAL UNIT, HAREFIELD, MIDDLESEX. NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications are invited for the post of REGISTRAR to the Harefield Thoracic Surgical Unit (100 Beds) which serves the North West Metropolitan Region. Candidates must have had previous surgical experience and preference will be given to candidates with a higher surgical qualification. The appointment will be held in the first instance for 1 year.

Application forms obtainable from, and returnable to, the Secretary, Harefield and Northwood Group Hospital Management Committee, Mount Vernon Hospital, Northwood, Middx, by 2nd November, 1954.

HUDDERSFIELD. ST. LUKE'S HOSPITAL. (262 Beds.) HUDDERSFIELD HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of RESIDENT MEDICAL OFFICER (Junior Hospital Medical Officer grade) at the above Hospital to commence duties immediately. The Hospital at present caters for chronic sick, children and maternity patients but during the coming months the work will be extended by the opening of a theatre and acute block. Salary in accordance with the terms and conditions of service for hospital medical and dental staffs, £775–£50–£1075.

Applications, together with copies of 3 recent testimonials, to be sent to the undersigned as soon as possible.

H. J. JOHNSON, Secretary to the Management Committee.
The Royal Infirmary, Huddersfield.

HASTINGS AND ST. LEONARDS. BUCHANAN HOSPITAL. (94 Beds.) HOUSE SURGEON for Gynæcology (28 gynæcological beds). Post vacant 17th November, for 6 months, is recognised for M.R.C.O.G. Candidates for Pre-registration Service (surgery) can be considered.

Apply, with 3 recent testimonials, to Hospital Administrator.

HEREFORD GENERAL HOSPITAL. (154 Beds, 71 surgical.) HOUSE OFFICER (general surgery). Hospital recognised by Royal College of Surgeons.

Applications, with copies of 2 recent testimonials, to the Secretary, Hospital Management Committee, Victoria House, Eign-street, Hereford.

HULL. KINGSTON GENERAL HOSPITAL. (444 Beds.) HULL A GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR HOUSE PHYSICIAN. There are 2 Junior House Physicians. Resident post. Salary £745, less £155 for emoluments. Vacant early November.

Applications, with full particulars, to the Hospital Secretary.

HITCHIN, HERTFORDSHIRE. LISTER HOSPITAL. (360 Beds.) NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Whole-time MEDICAL REGISTRAR (resident), required at above Hospital. Preference will be given to applicants having experience in medical emergencies. Post vacant 7th January, 1955. Hospital may be visited by direct appointment.

Application forms obtainable from, and returnable to, Secretary, Luton and Hitchin Group Hospital Management Committee, St. Mary's Hospital, Luton, Beds, by 9th November.

HITCHIN HOSPITALS, Hitchin, Hertfordshire. Applications are invited for the post of RESIDENT HOUSE SURGEON at the North Herts Hospital, vacant 1st December, 1954. Recognised for F.R.C.S.

Applications, stating age, nationality, qualifications and experience, together with copies of 3 recent testimonials, to be sent to the Medical Administrator, Lister Hospital, Hitchin.

HITCHIN HOSPITALS, Hitchin, Hertfordshire. Applications are invited for the post of RESIDENT ANÆSTHETIST (Senior House Officer), vacant 1st December, 1954. The post offers varied experience, and is recognised for the D.A. examination.

Applications, stating age, nationality, qualifications and experience, together with copies of 3 recent testimonials, to be sent to the Medical Administrator, Lister Hospital, Hitchin, immediately.

HOVE GENERAL HOSPITAL, Sussex. (75 Beds. 3 Resident Medical Officers.) SENIOR HOUSE OFFICER (recognised for the F.R.C.S.). Post vacant now. Duties of Resident Surgical Officer. Appointment for 1 year.

Applications, giving particulars of qualifications, experience, &c., and naming 2 referees, to the Administrative Officer as soon as possible.

ISLEWORTH. WEST MIDDLESEX HOSPITAL. North WEST METROPOLITAN REGIONAL HOSPITAL BOARD. REGISTRAR (pædiatrics) non-resident, vacant January. 1 year in first instance and subject to review. Previous experience in pædiatrics essential. Higher qualifications D.C.H. or M.R.C.P. desirable. Duties will include care of children in Unit, newborns and prematures wards, attendances at outpatient clinics, participation in teaching of postgraduate students and lectures to nurses and midwives in training. Candidates may visit by appointment.

Application forms obtainable from, and returnable to, Group Secretary, South West Middlesex Hospital Management Committee, West Middlesex Hospital, Isleworth, by 30th October, 1954.

ISLEWORTH. WEST MIDDLESEX HOSPITAL. South WEST MIDDLESEX HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER required for Psychiatric Unit. Duties mainly in observation wards. Post recognised by Conjoint and R.M.P.A. as D.P.M. training post.

Applications, stating age, nationality, qualifications and experience with copies of up to 3 recent testimonials, to Group Secretary, West Middlesex Hospital, Isleworth, by 1st November, 1954.

ISLEWORTH. WEST MIDDLESEX HOSPITAL. North WEST METROPOLITAN REGIONAL HOSPITAL BOARD. REGISTRAR (whole-time) required in Department of Physical Medicine, vacant November. Department is a large one and includes unit with 10 beds under Physician in physical medicine. Candidates should have good experience in general medicine. Department recognised for Diploma of Physical Medicine. Hospital may be visited by direct appointment.

Application forms obtainable from, and returnable to, Group Secretary, South West Middlesex Hospital Management Committee, West Middlesex Hospital, Isleworth, by 8th November, 1954.

IPSWICH BOROUGH GENERAL HOSPITAL. (273 Beds.) Applications are invited for the post of SENIOR HOUSE OFFICER (resident Anæsthetist), now vacant. The post, which is normally of 1 years duration, is recognised for the D.A. and the F.F.A.R.C.S. examinations.

Applications, stating age, nationality, together with recent testimonials, to Hospital Secretary.

LEICESTER ISOLATION HOSPITAL AND CHEST UNIT. (328 Beds.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT REGISTRAR (thoracic surgery) required. Active Thoracic Surgical Centre undertaking all kinds of thoracic work including cardiac surgery. Appointment for 1 year in first instance. An unfurnished house may be available in the Hospital grounds for a married applicant.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 1st November, 1954, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

LEEDS, 9. ST. JAMES'S HOSPITAL. Leeds A Group HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners (Male and Female) for the appointment of SENIOR HOUSE OFFICER (orthopædics). The appointment will be for a period of 1 year and the salary will be in accordance with the agreed terms and conditions of service of hospital medical and dental staffs—namely, £745 p.a., with an appropriate deduction in respect of board, lodgings, and other services provided.

Applications, stating age, qualifications, experience, &c., together with the names of 2 referees, to be forwarded to the undersigned as soon as possible.

J. FOLKARD, Secretary to the Committee.
Administrative Offices, St. James's Hospital, Leeds, 9.

LEEDS, 9. ST. JAMES'S HOSPITAL. Leeds A Group HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of HOUSE PHYSICIAN (geriatrics), vacant 1st November. The appointment is recognised as a pre-registration House post but applications will be accepted from practitioners registered before 1st January, 1953.

Applications, with copy of 1 testimonial and the names of 2 referees, should be forwarded to the Group Secretary, St. James's Hospital, Leeds, 9, as soon as possible.

LEEDS A GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the appointment of SENIOR HOUSE OFFICER (anæsthetics) for duties mainly at St. James's Hospital. The appointment, which is recognised for the D.A. and the F.F.A.R.C.S., will be for a period of 1 year, and the salary will be in accordance with the agreed terms and conditions of service of hospital medical and dental staffs—namely, £745 p.a., with an appropriate deduction in respect of board, lodging, and other services provided.

Applications, stating age, qualifications, experience &c., together with the names of 2 referees, to be forwarded to the undersigned as soon as possible.

J. FOLKARD, Secretary to the Committee.
Administrative Offices, St. James's Hospital, Leeds, 9.

LEEDS, 2. PUBLIC DISPENSARY AND HOSPITAL. LEEDS A GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the appointment of CASUALTY OFFICER (Senior House Officer) at the above Dispensary. The appointment will be for a period of 1 year. Salary in accordance with the agreed terms and conditions of service of hospital medical and dental staffs, with an appropriate deduction in respect of board, lodging, &c.

Applications, stating age, qualifications, experience, &c., together with the names of 2 referees, to be forwarded to the undersigned as soon as possible.

J. FOLKARD, Secretary to the Committee.

Administrative Offices, St. James's Hospital, Leeds, 9.

LEEDS. SEACROFT HOSPITAL, York-road. (417 Beds.) *SENIOR HOUSE OFFICER* for infectious diseases wards (199 Beds). Resident.

Applications, with full details of previous experience and names of 2 referees, to Group Secretary.

LEEDS REGIONAL HOSPITAL BOARD invites applications for the following REGISTRAR posts :—

Anæsthetics

Duties in the Hull A, Hull B, and East Riding Groups. Recognised for the F.F.A.R.C.S. Duties may include thoracic anæsthesia (non-resident).

General Medicine

Duties at the Regional Rheumatism Centre, Harrogate (240 Beds) (9 sessions), and the Rheumatism Clinic, General Infirmary at Leeds (2 sessions). Resident at Royal Bath Hospital, Harrogate.

General Surgery

(*a*) Hull A Group, mainly at Western and Kingston General Hospitals (*150 general surgical beds*) (*resident or non-resident*). Recognised for the F.R.C.S.

(*b*) Otley General Hospital (resident) (50 surgical beds). Consultant staff mainly from Leeds Teaching Hospitals. Appointment includes 2 sessions clinical work at the General Infirmary at Leeds.

(*c*) Duties in the Wakefield A and B Groups mainly at the Clayton Hospital, Wakefield (*75 surgical beds*) (non-resident).

Obstetrics and Gynæcology

(*a*) The duties of the post will alternate (6 month periods) between St. Mary's Hospital, Leeds (109 obstetric beds), and St. James's Hospital, Leeds (74 obstetric and 52 gynæcological beds) (resident). Recognised for the M.R.C.O.G.

(*b*) Wakefield A and B Groups (with occasional duties in Pontefract and Goole Groups) (non-resident). *Offers good* experience but is not at present recognised by the R.C.O.G. for membership purposes. Aggregate of 120 obstetric and 50 gynæcological beds.

Orthopædic Surgery

(*a*) Hull A Group (50 orthopædic beds), Hull B Group and East Riding Group (50 orthopædic beds) (non-resident). Includes *some duties in the Casualty Department at the Hull Royal* Infirmary.

(*b*) Huddersfield Royal Infirmary and other hospitals in the Huddersfield Group (34 orthopædic beds) (non-resident).

(*c*) *St. James's Hospital, Leeds (64 orthopædic beds)* and the Public Dispensary, Leeds (non-resident).

Pædiatrics

Duties in the Huddersfield and Halifax Groups (aggregate of 60 acute pædiatric beds) with additional duties in infectious diseases (preferably resident). Small flat available at Northowram Infectious Diseases Hospital, Halifax.

Psychiatry

(*a*) Oulton Hall Hospital, near Wakefield, and affiliated Mental Deficiency Colonies (aggregating 780 beds) (non-resident).

(*b*) Meanwood Park (Mental Deficiency) Hospital, Leeds (700 Beds) (resident—flat available for married couple without children).

Facilities for attendance at the Leeds University will be provided if the successful candidates are studying for the D.P.M.

Thoracic Surgery

Duties with the Thoracic Surgical Unit at the Bradford Royal Infirmary and associated hospitals in the Middleton and Grassington Group (60 beds for both non-tuberculous and tuberculous cases) (non-resident).

Applications, stating age, qualifications, and details of present and previous appointments with dates, together with the names and addresses of 3 referees, should be forwarded to the Secretary, Joint Registrars Committee, Park-parade, Harrogate, not later than 4th November, 1954.

LIVERPOOL (near). MOSS SIDE HOSPITAL, Maghull, near LIVERPOOL. (460 Beds.) BOARD OF CONTROL. REGISTRAR or JUNIOR HOSPITAL MEDICAL OFFICER (tenure 3 years) at above Hospital for patients exhibiting conduct disorders with mental deficiency. Excellent opportunities for study, treatment and training of behaviour disorders of all kinds and degrees. Applicants must be registered medical practitioners. Appointment on National Health Service conditions of service and superannuation regulations. Furnished quarters, attendance and food provided at appropriate charges.

Applications, stating name, date and place of birth, nationality, details of education, professional qualifications, war service, present and previous appointments, and names of 3 referees, to Medical Superintendent, Moss Side Hospital, Maghull, near Liverpool, by 13th November, 1954. Envelopes to be marked A.R/JHMO. Canvassing in any form leads to disqualification. Candidates may visit Hospital by appointment with Medical Superintendent.

LIVERPOOL. THE UNITED LIVERPOOL HOSPITALS. ST. PAUL'S EYE HOSPITAL. Applications are invited for a temporary post of SENIOR HOUSE OFFICER in Ophthalmology for the period to 30th September, 1955.

Apply by 4th November, 1954, on form obtainable from the Secretary, The United Liverpool Hospitals, 80, Rodney-street, Liverpool, 1.

LIVERPOOL. THE UNITED LIVERPOOL HOSPITALS. LIVERPOOL REGIONAL HOSPITAL BOARD. Applications are invited for a post of SENIOR REGISTRAR in Obstetrics and Gynæcology for the period to 30th September, 1955, with duties in the first instance at the Liverpool Maternity Hospital where residence will be provided. Annual reappointment after 30th September, 1955, until completion of the normal period of training will be considered without need for further application.

Apply by 4th November, 1954, on form obtainable from the Secretary, The United Liverpool Hospitals, 80, Rodney-street, Liverpool, 1.

LOUGHBOROUGH GENERAL HOSPITAL. (120 Beds.) Applications are invited for 2 posts of SENIOR HOUSE OFFICER (surgical).

Applications, stating age, qualifications and experience, with copies of recent testimonials, to the Secretary, No. 1 Hospital Management Committee, 38A, East Bond-street, Leicester, forthwith.

LUTON AND DUNSTABLE HOSPITAL, Luton, Bedfordshire. Applications are invited for the post of RESIDENT ANÆSTHETIST (Senior House Officer), now vacant. The post offers varied experience and is recognised for the D.A. examination.

Applications, stating age, nationality, qualifications and experience, together with copies of 3 recent testimonials, to be sent to the Secretary immediately.

MANCHESTER REGIONAL HOSPITAL BOARD. Applications are invited for the post of REGISTRAR (*anæsthetics*), resident, to the Burnley and District Group of hospitals. The hospitals are recognised for the purposes of the D.A.

Applications, together with the names and addresses of 3 referees, should be addressed to the Group Secretary, Burnley and District Hospital Management Committee, Burnley General Hospital.

MANCHESTER REGIONAL HOSPITAL BOARD invite applications for the post of RESIDENT REGISTRAR in the Board's Non-tuberculous Thoracic Surgery Unit of 58 Beds at Park Hospital, Davyhulme. 1 year appointment, renewable. Post vacant early December.

Application forms from Secretary, Park Hospital, Davyhulme, Urmston.

MANCHESTER REGIONAL HOSPITAL BOARD.

(*a*) NON-RESIDENT SENIOR REGISTRAR in E.N.T. Surgery in the South Manchester Group of hospitals, mainly at Wythenshawe Hospital, the Manchester Ear Hospital and the Manchester Hearing Aid Clinic. Arrangements may later be made for the person appointed to transfer to the United Manchester Hospitals to continue training. 1st November, 1954.

(*b*) NON-RESIDENT SENIOR REGISTRAR in Thoracic Medicine to be attached in the first instance to the Manchester Chest Diseases Team with main duties at the Manchester Chest Clinic. Arrangements may later be made for the successful *applicant to transfer to another area in the Region for wider* experience. 9th November, 1954.

Application forms from the Senior Administrative Medical Officer to the Board at Cheetwood-road, Manchester, 8, to be returned by dates stated.

MANCHESTER. UNITED MANCHESTER HOSPITALS. SAINT MARY'S HOSPITALS, MANCHESTER. Applications are invited for the post of *HOUSE OFFICER in Gynæcology*. Applicants must have had previous hospital experience in medicine and surgery. The post is recognised for the purposes of the M.R.C.O.G. examination. The appointment is for 6 months commencing 1st January, 1955. Salary in accordance with national scale.

Application forms may be obtained from the undersigned and returned not later than 8th November, 1954.

A. R. WISE, General Superintendent.

Saint Mary's Hospitals, Whitworth Park, Manchester, 13.

MANCHESTER. WEST MANCHESTER HOSPITAL MANAGEMENT COMMITTEE.

Park Hospital, Davyhulme (General Hospital—433 Beds)

1 SENIOR HOUSE OFFICER (general surgery). Post recognised for F.R.C.S. examination. Post vacant mid-November, 1954.

1 SENIOR HOUSE OFFICER (general medicine). Post vacant early December, 1954.

Eccles and Patricroft Hospital (General Hospital—48 Beds)

1 SENIOR HOUSE OFFICER. Post now vacant.

1 HOUSE OFFICER (post-registration post). Additional allowance of £50 p.a. Post now vacant.

The work of the Hospital is mainly surgical and there is a busy Outpatient Department.

Forms from Secretary, Park Hospital, Davyhulme.

MID-KENT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of RESIDENT ANÆSTHETIST for joint duties at the Kent County Ophthalmic and Aural Hospital, and the West Kent General Hospital, Maidstone (total beds 254). The post, which will shortly be vacant, is of Senior House Officer grade, and carries a salary of £745 a year, with a deduction of £150 for residential emoluments. Excellent experience under Consultant Anæsthetists is available, and the post is recognised for the F.F.A.R.C.S. examination.

Applications, stating age, nationality, qualifications and experience, together with the names of 2 suitable referees, should be forwarded to the Administrative Officer, West Kent General Hospital, Maidstone.

NORWICH. UNITED NORWICH HOSPITALS. East ANGLIAN REGIONAL HOSPITAL BOARD. ANÆSTHETIC REGISTRAR. Post provides wide experience and recognised for D.A. and F.F.A.R.C.S. Appointment for 1 year, renewable for second year.

Applications, stating age, experience, and names of 3 referees, to Secretary of Board, 117, Chesterton-road, Cambridge, by 8th November, 1954. Candidates invited to visit hospitals by direct arrangement with Hospital Management Committee Secretary, Norfolk and Norwich Hospital.

MAIDSTONE. KENT COUNTY OPHTHALMIC AND AURAL HOSPITAL. (113 Beds.) MID-KENT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of SENIOR HOUSE SURGEON in the E.N.T. Department of the above Hospital. Post vacant December, 1954. There are 55 E.N.T. beds and 6 specialist operating sessions each week. Valuable experience is available, and the post is recognised for the purpose of the F.R.C.S. and the D.L.O. Salary will be £745 a year, less £150 a year for residential emoluments.

Applications to the Administrative Officer, Kent County Ophthalmic and Aural Hospital, Maidstone, Kent.

NEWCASTLE REGIONAL HOSPITAL BOARD. Special AREA COMMITTEE FOR CUMBERLAND AND NORTH WESTMORLAND. EAST CUMBERLAND GROUP OF HOSPITALS. Whole-time REGISTRAR ANÆSTHETIST required for 1 year in the first instance, with probable extension for a further period. Accommodation can be provided for a single person at the Cumberland Infirmary, Carlisle, where the main duties of the post will lie. The post is recognised for the D.A. and the F.F.A.R.C.S.

Applications, together with names of 1/3 referees, to be sent to the Senior Administrative Medical Officer, 1, Lonsdale-street, Carlisle, within 14 days.

NEWCASTLE GENERAL HOSPITAL. (861 Beds.) NEWCASTLE UPON TYNE HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for a whole-time SENIOR HOUSE OFFICER (pædiatrics), resident, to the Children's Department in the above Hospital, to commence duties in December. Salary is in accordance with the terms and conditions of service of hospital medical and dental staffs (England and Wales). The department is actively associated with the Department of Child Health of Durham University, and the post offers good opportunities for gaining experience in many aspects of pædiatrics. The appointment is for 1 year in the first instance.

Applications, together with 1 copy of 2 testimonials, to be sent to the Secretary, Newcastle General Hospital, Westgate-road, Newcastle upon Tyne, 4, not later than 6th November, 1954.

NOTTINGHAM GENERAL HOSPITAL. Locum Third CASUALTY OFFICER required (Senior House Officer grade). Salary (less £150 emoluments) and conditions of service in accordance with Ministry regulations.

Applications, giving full details, to be sent to—
General Hospital, Nottingham. HENRY M. STANLEY.

NOTTINGHAM GENERAL HOSPITAL. Applications are invited from registered general practitioners for the post of THIRD CASUALTY OFFICER (Senior House Officer grade). Salary (less £150 emoluments) and conditions of service in accordance with those laid down by the Ministry. Duties to commence as soon as possible. This post offers wide experience of casualty work. The Staff establishment requires only 1 night in 3 emergency work, and off duty permits time for study for higher examinations.

Applications, stating age, qualifications and experience, together with copies of testimonials, to be sent to—
General Hospital, Nottingham. HENRY M. STANLEY.

NOTTINGHAM GENERAL HOSPITAL. Applications are invited from registered medical practitioners (Male or Female—locum tenens considered) for the post of RESIDENT SENIOR ANÆSTHETIC HOUSE OFFICER. Duties to commence as soon as possible. Terms and conditions of service in accordance with published regulations of the Ministry of Health, £150 deducted for residential emoluments.

Applications, stating age, qualifications and experience, together with copies of testimonials, to be sent to—
HENRY M. STANLEY, Group Secretary.

NOTTINGHAM GENERAL HOSPITAL. Applications are invited for the post of CLINICAL PATHOLOGIST (Senior House Officer grade), resident or non-resident, vacant 1st December. Previous experience in pathology not essential. Opportunities for training in all branches of clinical pathology are afforded in a department serving over 1200 beds. Salary and conditions of service in accordance with Ministry regulations.

Applications, with names and addresses of 3 referees, should be received before 30th October, addressed to the Secretary.

NOTTINGHAM AND MIDLAND EYE INFIRMARY. Required, SENIOR HOUSE OFFICER and HOUSE SURGEON for the above Hospital. Duties to commence on or about 20th October, 1954. Salaries and conditions of service in accordance with Ministry regulations.

Applications, stating age, qualifications and experience, together with testimonials, to be sent as soon as possible to—
HENRY M. STANLEY, Group Secretary.
General Hospital, Nottingham.

NORTHWOOD, PINNER AND DISTRICT HOSPITAL, Pinner-road, NORTHWOOD, MIDDLESEX. A vacancy has arisen on the General Practitioner staff of the above Hospital. The successful candidate will be required to act as Duty Officer on a "rota" basis with other members of the staff and to be competent to undertake anæsthetic work as required, for which payment will be made at the rate of £175 p.a., based on 1 notional half-day session per week. The Hospital may be visited by direct appointment.

Applications should be sent to the Secretary, Harefield and Northwood Group Hospital Management Committee, Mount Vernon Hospital, Northwood, Middx, not later than 6th November, 1954.

NORTHWOOD, MIDDLESEX. MOUNT VERNON HOSPITAL. ANÆSTHETIC REGISTRAR required for the Centre for Plastic Surgery. Duties will consist of routine work in the Centre together with emergency work both in the Centre and in the general hospital. Candidates should be working for, or in possession of, the higher qualifications in anæsthesia.

Application forms obtainable from, and returnable to, the Secretary, Harefield and Northwood Group Hospital Management Committee, Mount Vernon Hospital, Northwood, Middx, by 2nd November, 1954.

NEWPORT, MONMOUTHSHIRE. ROYAL GWENT HOSPITAL. (260 Beds.) JUNIOR HOSPITAL MEDICAL OFFICER or SENIOR HOUSE OFFICER (E.N.T. and ophthalmic) required about 1st November. National salary, less £125 board-residence. Grade depends on period since qualification. Recognised D.L.O. Covers 23 E.N.T. and 8 eye beds.

Write, quoting 2 referees, to T. A. JONES, Group Secretary. 64, Cardiff-road, Newport, Mon.

OXFORD. UNITED OXFORD HOSPITALS. Applications invited for post of NON-RESIDENT PÆDIATRIC REGISTRAR at the Churchill Hospital, with effect from 1st January, 1955.

Applications on forms obtainable from the Administrator, Radcliffe Infirmary, Oxford, to reach him by not later than 6th November.

ORPINGTON HOSPITAL, Orpington, Kent. Applications are invited for the post of RESIDENT CASUALTY OFFICER (Male) at Senior House Officer grade for above General Hospital (813 Beds). Post recognised for F.R.C.S.

Applications to the Physician-Superintendent.

PERTH. COUNTY AND CITY OF PERTH GENERAL HOSPITALS. Applications are invited for the post of HOUSE PHYSICIAN (General Medical Unit), Bridge of Earn Hospital, which will be tenable from now until 31st January, 1955.

Applications, with details of experience and names of 2 referees, should be sent immediately to the Group Medical Superintendent, Perth Royal Infirmary, Perth.

PERTH. COUNTY AND CITY OF PERTH GENERAL HOSPITALS. Applications are invited for the post of SENIOR HOUSE SURGEON (E.N.T. Department), Bridge of Earn Hospital. Post vacant now.

Applications, giving age, qualifications, experience, and names of 2 referees, should be sent to the Group Medical Superintendent, Perth Royal Infirmary, Perth.

PERTH. COUNTY AND CITY OF PERTH GENERAL HOSPITALS. Applications are invited for the following posts :—
2 SENIOR HOUSE SURGEONS (Fracture and Orthopædic Unit), Bridge of Earn Hospital.
2 HOUSE SURGEONS (Fracture and Orthopædic Unit), Bridge of Earn Hospital.

Applications, with details of experience and names of 2 referees, should be sent immediately to the Group Medical Superintendent, Perth Royal Infirmary, Perth.

POOLE GENERAL HOSPITAL, Longfleet-road, Poole, DORSET. BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of SENIOR HOUSE OFFICER (anæsthetics). The Hospital is recognised for the D.A., and the F.F.A.R.C.S.

Applications to the Hospital Secretary.

POOLE GENERAL HOSPITAL, Longfleet-road, Poole, DORSET. BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. 2 HOUSE SURGEONS (pre-registration) required. 1 post vacant 3rd December, 1954, and the other on 4th January, 1955. The Hospital is recognised for the F.R.C.S. and the F.R.C.S.E.

Applications to the Hospital.

PLYMOUTH. SOUTH DEVON AND EAST CORNWALL HOSPITAL, Greenbank-road. Applications invited from registered dental practitioners for the appointment of RESIDENT DENTAL HOUSE SURGEON, vacant immediately. This appointment is recognised by the Royal College of Surgeons as fulfilling the requirements of candidates for the Fellowship of Dental Surgery.

Applications, stating age, nationality, and experience, together with copies of 3 recent testimonials, should be sent to—
ARTHUR R. CASH, Group Secretary, Plymouth,
South Devon and East Cornwall General Hospital Group.
7, Nelson-gardens, Stoke, Plymouth.

PLYMOUTH. MOUNT GOLD ORTHOPÆDIC HOSPITAL (with Annexe 122 Beds). PLYMOUTH SPECIAL HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR HOUSE OFFICER for the Orthopædic and Fracture Service, centring on Mount Gold Orthopædic and associated hospitals. Furnished or unfurnished house available. Position recognised by the Royal College of Surgeons. Vacancy immediately.

Applications, stating age, qualifications with dates, &c., and with copies of 2 recent testimonials, to be forwarded to the Secretary, Mount Gold Hospital, Plymouth, within 14 days of this advertisement appearing.

READING. ROYAL BERKSHIRE HOSPITAL. (403 Beds.) Applications are invited from registered medical practitioners for the appointment of JUNIOR HOUSE SURGEON (gynæcology), vacant 1st November. Post M.R.C.O.G. recognised and tenable for 6 months. £525 p.a., less £125 for board-residence.

Write, stating age, qualifications with dates, nationality, and present post, with copy of a recent testimonial, to the Secretary.

ST. ALBANS CITY HOSPITAL, St. Albans, Hertfordshire. (382 Beds.) NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Whole-time MEDICAL REGISTRAR required. Post vacant 11th January, 1955. Preference given to candidates having considerable experience in dealing with medical emergencies. Hospital may be visited by direct appointment.

Application forms obtainable from, and returnable to, Group Secretary, Mid-Herts Group Hospital Management Committee, Bleak House, Catherine-street, St. Albans, by 1st November, 1954.

ST. ALBANS CITY HOSPITAL, St. Albans, Hertfordshire. (382 Beds.) JUNIOR HOSPITAL MEDICAL OFFICER required for duties mainly at the above Hospital for gynæcological and obstetric work. Hospital recognised for D.Obst. R.C.O.G.

Applications to Group Secretary, Mid-Herts Group Hospital Management Committee, Bleak House, Catherine-street, St. Albans, by 29th October, 1954.

STOKE-ON-TRENT. CITY GENERAL HOSPITAL. STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. HOUSE OFFICER (general surgery) required, vacant shortly. Hospital recognised for F.R.C.S. examination, and the post is recognised for experience during the pre-registration period.

Apply, with copy testimonials, stating age, nationality, and full details of previous service, to the Group Secretary, Hospital Management Committee, Princes-road, Stoke-on-Trent.

STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. Applications invited for RESIDENT ASSISTANT CLINICAL PATHOLOGIST to the Stoke-on-Trent Group of hospitals, vacant now. Single accommodation available at the North Staffs Royal Infirmary. The post is of Junior Hospital Medical Officer status, but applications from practitioners with less than the required 2 years qualification period will be considered, in the grade of Senior House Officer. The post offers exceptional experience in hospital laboratory work and the laboratory is recognised for the Diploma in Clinical Pathology and also for the Diploma in Pathology.

Applications, stating age, nationality, and full details of previous appointments held, together with copies of 3 recent testimonials, to the Group Secretary, Hospital Management Committee, Princes-road, Stoke-on-Trent, as soon as possible.

STOKE-ON-TRENT. NORTH STAFFORDSHIRE ROYAL INFIRMARY. STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. Applications invited for SENIOR HOUSE OFFICER (orthopædics). Post recognised for F.R.C.S.

Apply, stating age and nationality, together with details of previous service, to the Group Secretary, Stoke-on-Trent Hospital Management Committee, Princes-road, Stoke-on-Trent.

STOKE-ON-TRENT. NORTH STAFFORDSHIRE ROYAL INFIRMARY. STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. HOUSE OFFICER (general surgery) required. Hospital recognised for F.R.C.S. examination, and post recognised for experience during the pre-registration period.

Apply, with copy testimonials, stating age, nationality and full details of previous service, to the Group Secretary, Hospital Management Committee, Princes-road, Stoke-on-Trent.

STORNOWAY. LEWIS HOSPITAL. Lews and Harris HOSPITALS BOARD OF MANAGEMENT. Applications are invited for the post of RESIDENT HOUSE PHYSICIAN at the above Hospital, which falls vacant on 1st November, 1954. Salary £475–£575 p.a. according to previous experience. Preference will be given to applicants with previous hospital service. The post, which is a recognised House Officer one, will be for a period of 6 months in the first instance.

Applications, together with copies of recent testimonials, should be sent immediately to—

IAN MACLEOD, Secretary and Finance Officer.

Lewis Hospital, Stornoway.

SWANSEA. MOUNT PLEASANT HOSPITAL. Glantawe HOSPITAL MANAGEMENT COMMITTEE. Registered medical practitioners are invited to apply for the appointment of JUNIOR HOSPITAL MEDICAL OFFICER (Female) for work in the Medical and Surgical Departments, and in the chronic sick wards of the above Hospital.

Applications, stating age, experience and qualifications, should be addressed to the Group Secretary, Glantawe Hospital Management Committee, St. Helen's-road, Swansea.

SWINDON. VICTORIA HOSPITAL. Applications invited for post of RESIDENT SENIOR HOUSE OFFICER (anæsthetics) for the Swindon hospitals. Post is recognised for the D.A. Approved salary, conditions, &c.

Apply, with copies of 3 recent testimonials, to Secretary, Swindon and District Hospital Management Committee, 7, Okus-road, Swindon.

STAFFORD. STAFFORDSHIRE GENERAL INFIRMARY. (175 Beds.) RESIDENT CASUALTY OFFICER (Junior Hospital Medical Officer) required (Male or Female).

Applications, giving particulars of age, previous experience, and copies of 2 recent testimonials, to the Group Secretary, Stafford Hospital Management Committee, 13, Foregate-street, Stafford.

SALISBURY GROUP HOSPITAL MANAGEMENT COMMITTEE. SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications are invited for the post of Locum DENTAL REGISTRAR to the Plastic and Oral Surgery Centre at Odstock Hospital. Post likely to be tenable for 4 months.

Applications should be sent to the Group Secretary, Odstock Hospital, Salisbury, immediately.

SALISBURY GENERAL HOSPITAL. Salisbury Group HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of RESIDENT HOUSE PHYSICIAN for a period of 6 months from 1st January, 1955. Pre-registration post under Medical Act 1950.

Apply, naming 2 referees, to Group Secretary, Odstock Hospital, Salisbury.

SALISBURY GENERAL HOSPITAL. Salisbury Group HOSPITAL MANAGEMENT COMMITTEE. HOUSE SURGEON to the Orthopædic Department. This appointment, which is for 6 months, is open to pre-registration candidates and is vacant at present.

Applications, stating age, nationality, and naming 2 referees, should be submitted to the Group Secretary, Odstock Hospital, Salisbury.

SCOTLAND. EASTERN REGIONAL HOSPITAL BOARD. Anæsthetics. DUNDEE ROYAL INFIRMARY. Applications are invited for an appointment as REGISTRAR at Dundee Royal Infirmary, the main Teaching Hospital (510 Beds) associated with the University of St. Andrews. Salary and conditions in accordance with national agreement.

Further particulars and forms of application may be obtained from the Secretary to the Board, 430, Blackness-road, Dundee, with whom applications must be lodged not later than 6th November, 1954.

SCOTLAND. EASTERN REGIONAL HOSPITAL BOARD. General Medicine. DUNDEE ROYAL INFIRMARY. Applications are invited for an appointment as REGISTRAR at Dundee Royal Infirmary, the main Teaching Hospital (510 Beds) associated with the University of St. Andrews. Salary and conditions in accordance with national agreement.

Further particulars and forms of application may be obtained from the Secretary to the Board, 430, Blackness-road, Dundee, with whom applications must be lodged not later than 6th November, 1954.

SCOTLAND. EASTERN REGIONAL HOSPITAL BOARD. General Surgery. DUNDEE TEACHING HOSPITALS. Applications are invited for a post as REGISTRAR at the Dundee Teaching Hospitals (Dundee Royal Infirmary, 510 Beds, and Maryfield Hospital, 400 Beds). Applicants should have had previous experience in general surgery and have passed at least a Primary Fellowship examination. Salary and conditions in accordance with national agreement.

Further particulars and forms of application may be obtained from the Secretary to the Board, 430, Blackness-road, Dundee, with whom applications must be lodged not later than 6th November, 1954.

SCOTLAND. WESTERN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of SENIOR REGISTRAR in Tuberculosis based at Robroyston Hospital, Glasgow, which will be for 1 year in the first instance. This appointment is subject to the National Health Service (Scotland) superannuation regulations.

Applications (12 copies), stating date of birth, qualifications, experience, present appointment, and the names of 3 referees, to reach the Secretary, Western Regional Hospital Board, 64, West Regent-street, Glasgow, by 13th November, 1954.

SCOTLAND. WESTERN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of SENIOR REGISTRAR in Psychiatry at the Southern General Hospital, Glasgow (Department of Psychological Medicine, University of Glasgow, which will be for a year in the first instance. This appointment is subject to the National Health Service (Scotland) superannuation regulations.

Applications (12 copies), stating date of birth, qualifications, experience, present appointment, and the names of 3 referees, to reach the Secretary, Western Regional Hospital Board, 64, West Regent-street, Glasgow, by 13th November, 1954.

SCOTLAND. WESTERN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of SENIOR REGISTRAR in E.N.T. Surgery based at Stobhill Hospital, Glasgow, which will be for 1 year in the first instance. This appointment is subject to the National Health Service (Scotland) superannuation regulations.

Applications (12 copies), stating date of birth, qualifications, experience, present appointment, and the names of 3 referees, to reach the Secretary, Western Regional Hospital Board, 64, West Regent-street, Glasgow, by 13th November, 1954.

SOUTHEND-ON-SEA GENERAL HOSPITAL. Applications are invited for the post of RESIDENT HOUSE PHYSICIAN (House Officer grade). Post vacant 17th December, 1954. Appointment primarily to Pædiatric Department, with duties in Cardiological and Skin Departments. Post recognised for D.C.H.

Applications, stating age, qualifications, and previous experience, with copies of recent testimonials, should reach the undersigned at the Hospital by 27th October, 1954.

J. C. FIELD, Secretary.

SOUTHEND-ON-SEA GENERAL HOSPITAL. Applications are invited for the post of RESIDENT SENIOR HOUSE OFFICER (surgical). Post vacant 1st December, 1954. Recognised for F.R.C.S.

Applications, stating age, qualifications, and experience, with copies of recent testimonials, should reach the undersigned at the Hospital by 27th October, 1954.

J. C. FIELD, Secretary.

SOUTHAMPTON EYE HOSPITAL. (32 Beds. Recognised for the D.O.M.S.) RESIDENT SENIOR HOUSE OFFICER required immediately. Salary £745 p.a.

Applications, with copies of testimonials, should be forwarded as soon as possible to the Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SOUTHAMPTON (near). COLDEAST HOSPITAL, SARISBURY GREEN, near SOUTHAMPTON. (783 mental deficiency beds.) JUNIOR HOSPITAL MEDICAL OFFICER required. Appointment tenable for any period up to 3 years. Salary £775, rising by 6 increments of £50 to £1075 p.a. Facilities will be given if required for attendance at the recognised neurological clinics and at Inpatient and Outpatient adult and children's Departments of nearby psychiatric hospitals for the purpose of qualifying for the D.P.M. or other diplomas. A 4-roomed bungalow is available if necessary for married candidates.

Applications should be sent to the Medical Superintendent, Coldeast Hospital, Sarisbury Green, near Southampton, from whom further particulars can also be obtained.

SOUTHPORT PROMENADE HOSPITAL. Senior House OFFICER (Physician), resident. Post vacant 20th November.

Apply, stating age, qualifications, experience, nationality, with copies of 2 testimonials, to—

T. CROOK, Group Secretary,
Southport and District Hospital Management Committee.
Promenade Hospital, Southport.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time SENIOR REGISTRAR in Psychiatry required for Middlewood Hospital, Sheffield (2089 Beds). D.P.M. essential. House available. Appointment for 1 year in the first instance, reviewable annually. Opportunity for research and experience in the special branches of psychiatry available in the Hospital area.

Application forms and further details obtainable from Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield. Forms to be returned by 1st November, 1954.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT or NON-RESIDENT REGISTRAR (anæsthetics) required at the City General Hospital, Sheffield. (Recognised for the D.A. & F.F.A.R.C.S.) This is a large general hospital with a Department of Thoracic Surgery, a Regional Cardiological Centre, and a Professorial Gynæcological Unit. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 1st November, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time SENIOR ORTHOPÆDIC REGISTRAR (transitional appointment) required for 1 year in the first instance, but not beyond 31st December, 1955, at the Doncaster Royal Infirmary. Applications invited from Senior Orthopædic Registrars in their fourth or subsequent years and from those who held such posts for 3 years or more but vacated them after 1st January, 1951.

Applications, giving age, nationality, qualifications, present and previous appointments with dates, together with the names and addresses of 3 referees, should be sent to the Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, to arrive not later than 8th November, 1954.

SHEFFIELD. CITY GENERAL HOSPITAL. (642 Beds. Recognised for the D.Obst.R.C.O.G. and M.R.C.O.G.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT REGISTRAR (obstetrics and gynæcology) required at the City General Hospital, Sheffield (108 obstetrical and 50 gynæcological beds). Duties mainly in Professorial Unit. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 1st November, 1954, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

SHEFFIELD. THE UNITED SHEFFIELD HOSPITALS. Applications invited for the following posts :—

(*a*) NON-RESIDENT SENIOR REGISTRAR in Anæsthetics. The appointment is for 1 year in the first instance and will be reviewed annually. It has been agreed in principle between the Board of Governors of The United Sheffield Hospitals and The Sheffield Regional Hospital Board that the appointment, if extended to the full period of 4 years, will be divided, subject to satisfactory work and progress, between The United Sheffield Hospitals and a hospital in the Region.

Closing date for applications 30th October, 1954.

(*b*) NON-RESIDENT SENIOR REGISTRAR in E.N.T. Surgery (transitional post) at the Royal Hospital Unit. Applications will be considered from Senior Registrars in their fourth or subsequent years in this specialty and from those who have held such posts for 3 or more years and have vacated them since 6th November, 1950. The appointment will cease on 31st December, 1955.

(*c*) NON-RESIDENT SENIOR HOUSE OFFICER in Ophthalmology at the Royal Hospital Unit. Post vacant.

(*d*) 2 RESIDENT SURGICAL REGISTRARS for the Royal Infirmary and Children's Hospital Units. 1 post vacant 9th January, 1955, and the other 25th January, 1955. The successful candidates will work on a rotation basis between the Royal Infirmary and Children's Hospital. It is intended, if possible, that they will spend equal periods in the Orthopædic Department and on each of 2 surgical firms at the Royal Infirmary ; and for a period at the Children's Hospital.

Closing date for applications, 7th November, 1954.

(*e*) NON-RESIDENT REGISTRAR or SENIOR HOUSE OFFICER in Clinical Pathology. Post vacant 1st January, 1955. Grade according to qualifications and experience.

(*f*) RESIDENT SENIOR HOUSE OFFICER in Anæsthetics at the Royal Infirmary Unit. Post vacant 15th January, 1955.

All applications for the above posts should state age, qualifications, experience, and give the names of 3 referees, and be sent immediately, except in posts (*a*) and (*d*). They should be addressed as follows :—

For posts (*a*), (*b*), (*d*), and (*e*), the Chief Administrative Officer, The United Sheffield Hospitals, West-street, Sheffield, 1.

For post (*c*), the Superintendent, The Royal Hospital, Sheffield, 1.

For post (*f*), the Superintendent, The Royal Infirmary, Infirmary-road, Sheffield, 6.

SLOUGH, BUCKINGHAMSHIRE. UPTON HOSPITAL. HOUSE SURGEON required (pre-registration post).

Applications, stating age and qualifications, to Hospital Secretary before 1st November.

SHREWSBURY. ROYAL SALOP INFIRMARY. (241 Beds.) SHREWSBURY GROUP HOSPITAL MANAGEMENT COMMITTEE. HOUSE SURGEON in General Surgery. Post recognised for F.R.C.S. and approved for Pre-registration Service. Vacant 13th November, 1954.

Applications and copy testimonials to Group Secretary, Royal Salop Infirmary, Shrewsbury.

WATFORD AND DISTRICT PEACE MEMORIAL HOSPITAL, Rickmansworth-road, WATFORD, HERTS. (196 Beds.) Applications are invited for the post of CASUALTY OFFICER AND ORTHOPÆDIC HOUSE SURGEON. The post is either resident or non-resident and is vacant immediately. Salary £425–£525, according to experience, less £125 per year if resident.

Applications, with copies of 2 recent testimonials, should be sent to CYRIL HOPKINSON, Administrator.

WARRINGTON INFIRMARY. Applications are invited from qualified practitioners for the vacancy of RESIDENT ANÆSTHETIST (Senior House Officer grade), Male or Female, at the Warrington Infirmary. The Infirmary is recognised for the D.A. examination. Scale of salary £745 p.a., less £130 p.a. for residential emoluments.

Applications to—

H. L. BOOT, Group Secretary,
Warrington and District Hospital Management Committee,
c/o General Hospital, Warrington, Lancs.

TAPLOW, near MAIDENHEAD. CANADIAN RED CROSS MEMORIAL HOSPITAL. REGISTRAR required to the Special Unit for Research in Juvenile Rheumatism at the above Hospital. Post offers scope for those interested in research, pædiatrics, rheumatology or cardiology. Hospital may be visited by direct appointment.

Application forms obtainable from, and returnable to, Group Secretary, Windsor Group Hospital Management Committee, Alma-road, Windsor, by 7th November.

TORQUAY. TORBAY HOSPITAL. Resident Casualty OFFICER (Senior House Officer status) required for 1st November, 1954.

Applications, stating qualifications, nationality, age, with copies of testimonials (quoting ref. F955/48), to the Group Secretary, Torquay District Hospital Management Committee, 62/64, East-street, Newton Abbot, S. Devon.

WEST BROMWICH AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE GROUP NO. 18. THE MIDLAND CENTRE FOR NEUROSURGERY, SMETHWICK HOSPITAL, Holly-lane, SMETHWICK. RESIDENT SENIOR HOUSE OFFICER required for this Hospital devoted to the care of neurosurgical and neurological patients. This Hospital is just opening, and this resident appointment will be for work in both surgical and medical wards. This appointment is well suited for those studying for higher medical or surgical examinations.

Applications, together with 3 testimonials, should be submitted to Mr. J. O. ROBINS, Group Secretary, at the West Bromwich and District General Hospital, Edward-street, West Bromwich.

WELSH REGIONAL HOSPITAL BOARD.

REGISTRAR (obstetrics and gynæcology) based at St. Asaph General Hospital, North Wales (77 Beds). Accommodation available for married person.

REGISTRAR (obstetrics and gynæcology), Llwynypia Hospital, Rhondda (resident).

SENIOR SURGICAL REGISTRAR (plastic surgery) based at St. Lawrence Hospital, Chepstow. Expected to visit other hospitals in South Wales area. Considerable opportunities for training in specialty. In addition candidate will be associated with the Consultant in his work in the Department of Plastic Surgery at the United Cardiff Hospitals. Accommodation for single person.

Subject to review end of first year.

Application forms from Senior Administrative Medical Officer, Temple of Peace, Cathays Park, Cardiff, within 14 days.

WINDSOR. KING EDWARD VII HOSPITAL. Casualty OFFICER required (Senior House Officer grade). Department forms part of Accident Service of the Windsor Group ; duties include House Surgeon to E.N.T. and Eye Departments. Previous experience in treatment of acute injuries desirable.

Applications, stating age, qualifications with dates, and nationality, with copies of recent testimonials, to Hospital Secretary.

WOLVERHAMPTON GROUP.

The Royal Hospital, Wolverhampton (An Associated Hospital of the University of Birmingham Medical School)
SENIOR HOUSE OFFICER (anæsthetist). Appointment recognised for D.A. and F.F.A.R.C.S. Vacant 15th November.
HOUSE OFFICER (casualty), vacant mid-November.

Wolverhampton and Midland Counties Eye Infirmary
(Recognised for F.R.C.S. and D.O. examinations)
SENIOR HOUSE OFFICER, vacant 7th November.

New Cross Hospital, Wolverhampton
HOUSE OFFICER (general medicine), approved for Pre-registration Service, vacant 1st November.

Applications, with copies of 3 recent testimonials, to be sent to Group Secretary, The Royal Hospital, Wolverhampton.

WORTHING HOSPITAL, Lyndhurst-road, Worthing. (210 Beds—General.) WORTHING GROUP HOSPITAL MANAGEMENT COMMITTEE. The vacancy for HOUSE SURGEON will occur at the beginning of December, 1954.

Applications from either registered medical practitioners, or pre-registration candidates, stating age, qualifications, experience, nationality, and enclosing copies of 2 recent testimonials, to be forwarded to the Hospital Secretary as soon as possible.

A. V. OAKTON, Group Secretary.

WORTHING HOSPITAL, Lyndhurst-road, Worthing, SUSSEX. (273 Beds.) WORTHING GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the whole-time post of MEDICAL REGISTRAR with duties in the general medical wards and Pædiatric Unit. The post will be vacant from 8th December, 1954.

Forms of application, obtainable from the undersigned.

A. V. OAKTON, Group Secretary,
Worthing Group Hospital Management Committee.
129, Brighton-road, Worthing, Sussex.

WORCESTER (near). POWICK HOSPITAL. Applications are invited for the post of JUNIOR HOSPITAL MEDICAL OFFICER (resident or non-resident). The post offers experience in all branches of psychiatry, including all forms of modern treatment and outpatient clinics. The Hospital has a high admission-rate, is recognised for the D.P.M., and has associated Child Guidance Clinics and a Mental Deficiency Institute similarly recognised. Arrangements are made for Medical Officers to attend at the Birmingham Medical School for instruction in neurology.

Applications, with full details and the names of 2 referees, to be forwarded to the Medical Superintendent.

WEYMOUTH AND DISTRICT HOSPITAL. (124 Beds.) HOUSE PHYSICIAN required (Male or Female). Post vacant mid-November and tenable for 6 months. Approved for Pre-registration Service.

Applications, giving details of age, experience, qualifications, and nationality, together with copies of testimonials, to Group Secretary, West Dorset Hospital Management Committee, Damers-road, Dorchester, Dorset, immediately.

WEYMOUTH AND DISTRICT HOSPITAL. (124 Beds.) *HOUSE SURGEON required (Male or Female).* Post vacant early November and tenable for 6 months. Recognised for F.R.C.S. examination and approved for Pre-registration Service.

Applications, stating age, experience, qualifications, and nationality, together with copy testimonials, to Group Secretary, West Dorset Hospital Management Committee, Damers-road, Dorchester, Dorset, immediately.

YORK A AND TADCASTER HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER required immediately for E.N.T. Department (30 Beds). Post recognised for D.L.O.

Applications, giving age, nationality, qualifications, experience, and names of 2 referees, to Secretary, Bootham Park, York.

YORKSHIRE. EAST RIDING HOSPITAL MANAGEMENT COMMITTEE.

Westwood Hospital, Beverley, Yorks (229 Beds)

(*a*) ASSISTANT PATHOLOGIST (Senior House Officer) required in Area Laboratory, with attendance Branch Laboratory at Driffield. Offers experience all branches pathology.

Northfield Sanatorium, Driffield, Yorks (78 Beds)

(*b*) SENIOR HOUSE PHYSICIAN, vacant now. Offers experience all branches tuberculosis within Group, including surgery, M.M.R. and clinics. Time for study. Ex-patients welcome.

Broadgate (Mental) Hospital, Beverley, Yorks (650 Beds)

(*c*) JUNIOR HOSPITAL MEDICAL OFFICERS (2), required now.

Salary for (*a*) and (*b*) £745 and for (*c*) £775–£50–£1075.

Detailed applications to Group Secretary, Westwood Hospital, Beverley, Yorkshire.

NEW YORK. NEW ROCHELLE HOSPITAL, New ROCHELLE, NEW YORK, U.S.A. (360-Bed general community hospital.) Approved by the Joint Commission on Accreditation of Hospitals. Also approved by the American College of Surgeons and American Medical Association for internship and residency training. Only graduates from approved university schools accepted. 2 INTERNSHIPS available for the term commencing 1st January, 1955. Stipend is $200 per month, plus complete maintenance. Passage back to England paid by Hospital after completion of 12-month internship.

Apply Superintendent.

Public Appointments

BRADFORD. CITY OF BRADFORD. Health Department. Appointment of ASSISTANT MEDICAL OFFICER. Applications are invited from registered medical practitioners who have had at least 3 years experience in the practice of their profession. The duties will mainly be clinical work in the School Health and Maternity and Child Welfare Services; but the person appointed will also be required to undertake such other duties from time to time as may be decided by the Medical Officer of Health. Applicants should preferably hold a Diploma in Public Health or Child Health. The salary is in the scale £950–£50–£1300 according to experience and the post is superannuable.

Forms of application may be obtained from the Medical Officer of Health, Town Hall, Bradford, 1, and should be returned to the undersigned within 14 days of the appearance of this advertisement.

Town Hall, Bradford, 1. W. H. LEATHEM, Town Clerk.

CITY OF WESTMINSTER. Applications are invited from medical practitioners to act as the Council's MEDICAL EXAMINER from 25th March next. Duties comprise mainly examination as and when necessary of members and prospective members of Council's staff and submission of written reports. Remuneration will be :—

(i) 25s. per case where the examinee attends the Medical Examiner or is visited by him within a 2-mile radius.

(ii) 35s. per case where the Medical Examiner visits the examinee outside such 2-mile radius.

The average cases and fees paid in the last 3 years were 183 and £229 respectively. Candidates must have consulting-room within the City of Westminster.

Applications, accompanied by the names and addresses of 2 referees, and giving full particulars of age, qualifications and experience, together with the address of consulting-room, to the Town Clerk, Westminster City Hall, Charing Cross-road, W.C.2, by 15th November, 1954.

COVENTRY. CITY OF COVENTRY. Applications are invited for joint post of SCHOOL MEDICAL OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH for duties connected with medical inspection and clinic treatment of school-children, also maternity and child welfare work and such other duties as the Medical Officer of Health and Principal School Medical Officer may include from time to time. Qualifications and experience in ascertainment of handicapped pupils an advantage. Salary £950–£1300. Commencing salary according to previous experience/qualifications.

Applications and further particulars to Principal School Medical Officer, Council House, Coventry.

FLINTSHIRE COUNTY COUNCIL. (Population 145,100.) Applications are invited for the appointment of DEPUTY MEDICAL OFFICER OF HEALTH (Male) from duly qualified and registered medical practitioners holding the Diploma in Public Health or similar qualification. Salary £1450 p.a., rising by annual increments of £50 to £1700 p.a., plus a car allowance. The appointment is superannuable and the successful candidate will be required to satisfy a medical examination.

Form of application and further particulars can be obtained from the undersigned and applications should be returned not later than 1st November, 1954.

W. HUGH JONES, Clerk of the County Council.

County Buildings, Mold.

DUBLIN. LOCAL APPOINTMENTS COMMISSION. Position vacant. SENIOR ASSISTANT MEDICAL OFFICER under the Ballinasloe Mental Hospital Authority. Salary £845–£35–£1020 plus emoluments of £159 and temporary bonus, with entry above the minimum in certain cases.

Application forms and particulars from the Secretary, 45, Upper O'Connell-street, Dublin. Latest time for receiving completed application forms 5 P.M. on 5th November, 1954.

DERBYSHIRE COUNTY COUNCIL. County Health DEPARTMENT. ASSISTANT MATERNITY AND CHILD WELFARE MEDICAL OFFICER AND SCHOOL MEDICAL OFFICER. Applications are invited from registered medical practitioners for this whole-time superannuable post. Salary £950 p.a. by annual increments of £50 to £1300 p.a., plus a car allowance.

Application forms are obtainable from Dr. J. B. S. MORGAN, County Medical Officer, St. Mary's-gate, Derby, to whom they should be returned by 8th November, 1954.

FACTORY DOCTORS. Factories Acts, 1937 and 1948. The following appointment as Appointed Factory Doctor is vacant. Apply to Chief Inspector of Factories, 8, St. James's-square, London, S.W.1.

District	*County*	*Latest date for receipt of applications*
CHRISTCHURCH ..	SOUTHAMPTON ..	6TH NOVEMBER, 1954

LANCASHIRE COUNTY COUNCIL. Registered medical practitioners required for appointment of ASSISTANT DIVISIONAL MEDICAL OFFICERS in areas adjacent to Bolton, Fleetwood, Nelson and Oldham. Possession of D.P.H. desirable. Salary £950–£1300 p.a. Travelling and subsistence allowances where applicable. Posts superannuable and subject to medical examination.

Application forms and further particulars from County Medical Officer of Health, East Cliff County Offices, Preston.

STOKE-ON-TRENT. CITY OF STOKE-ON-TRENT EDUCATION COMMITTEE. Applications are invited from fully qualified and registered medical practitioners for the post of ASSISTANT SCHOOL MEDICAL OFFICER. Salary scale: £950–£1300 p.a. by annual increments of £50. The duties will consist of routine medical inspections in schools and clinic work. Holidays as school holidays. The appointment is subject to the provisions of the National Health Service superannuation regulations and is terminable by 1 months notice on either side. The successful candidate will be required to pass a medical examination.

Form of application, which may be obtained from the undersigned, should be completed and returned as soon as possible.

H. DIBDEN, Chief Education Officer.

Town Hall, Hanley, Stoke-on-Trent.

WORCESTERSHIRE COUNTY COUNCIL. Assistant COUNTY MEDICAL OFFICER OF HEALTH (Worcestershire), MEDICAL OFFICER OF HEALTH (Droitwich Borough and Droitwich and Martley Rural Districts). Applications are invited from registered medical practitioners with D.P.H. for this combined appointment. Salary scale £1414—£1703 p.a.

Application forms with details from County Medical Officer, County Buildings, Worcester. (S.184.)

Miscellaneous

To non-professional posts the Notification of Vacancies Order 1952 applies.

Institute of Child Psychology Ltd. Applications invited for Child Psychiatrist, 2 sessions weekly, for clinical work and postgraduate teaching. Appointment will be Senior Hospital Medical Officer grade and salary. Candidates should have D.P.M. and particular experience of Child Guidance work.—Further information from the Secretary, 6, Pembridge-villas, London, W.11.

Medical Officer required for Middle East by large Oil Company. Preference for those with overseas experience and some knowledge of tropical work. Age about 35 and preferably single. Emoluments total over £1800 p.a. Paid home leave after 2 years. Pension fund.—Write to: Box No. 8079, c/o CHARLES BARKER & SONS LTD., 31, Budge-row, London, E.C.4.

Lady, 43, requires work as Medical-Secretary/Receptionist, nursing experience. London area. Highly recommended.—Address, No. 975, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Worcester. Superior and extensive detached freehold residence in spacious grounds. Occupying central position in large thickly populated medium working-class district ideally suitable for Doctor's residence and practice. Profession not at present represented in this vicinity. Excellent accommodation fully modernised and in first-class condition generally.—Full particulars and arrangements to view from THOS. R. JONES & Co., Estate Agents, 6, Foregate-street, Worcester (Telephone 5573/4 and 4315).

Austin. The new Cambridge A.40 and A.50 and all Show models. Limited number of orders now acceptable from proven essential users.—Application form, brochures, easy terms, from Austin House, 140/144, Golders Green-road, Golders Green, London, N.W.11.

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